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ASLIB PROCEEDINGS

incorporating Aslib Information

Volume 13 **January 1961** **Number 1**

ASLIB CALENDAR

January

THUR. 26. Winter meeting. See paragraph below.
TUE. 31. IBM and Aslib conference on better indexes.

February

WED. 1. Film Production Librarians' Group meeting at Shell-Mex House.
Economics Group visit to Holborn Central Library.
FRI. 3. Scottish Branch annual general meeting at East Kilbride.
WED. 8. Economics Group visit to BBC Television Service Library.
THUR. 9. Aeronautical Group annual general meeting.
WED. 15. Economics Group visit to Marks & Spencer Textile Laboratory.
MON. 20–THUR. 23. Senior introductory course to information work.
WED. 22. Winter meeting at Royal Aeronautical Society.

March

WED. 1. Film Production Librarians' Group meeting at Shell-Mex House.
Economics Group visit to Royal Institute of International Affairs.
WED. 22. Economics Group annual general meeting.
WED. 29. Midlands Branch annual general meeting in Birmingham.

April

WED. 5. Film Production Librarians' Group meeting at Shell-Mex House.
THUR. 20 – SAT. 22. Northern Branch conference at Durham.
FRI. 21 – SUN. 23. Electronics Group annual conference at Ashridge College.

Good luck for Aslib

Assistance in the preparation of this issue of *Aslib Proceedings* has been forthcoming from an unusual quarter which augurs well for the New Year. 'Blackie', the large pure black Persian cat from no. 6 Belgrave Square, paid a goodwill visit to the Publications Officer's desk and personally signed some of the copy.

. . . an Old Friend returns to Aslib

Members will be pleased to hear that Mr Jack Bird, who was Aslib librarian from 1950 to 1958, is to return to the association in the newly created appointment of Education Officer. Mr Bird will take up his duties on 4th April.

. . . and a new Librarian is welcomed

Miss M. E. M. Price, LIB.DIP(HONS.)(TORONTO) has been appointed Librarian to Aslib in succession to Mr. G. M. Paterson. She took up her duties on Monday 2nd January. Miss Price was Librarian at the Imperial College of Tropical Agriculture in Trinidad from 1949 to 1960 and a member of the Committee of Management, Trinidad Public Libraries, from 1957 to 1960.

New Year Honours

Members will have been delighted to see that Her Majesty the Queen has honoured Mr B. Agard Evans, Librarian, Ministry of Works, and Mr. J. D. A. Barnicot, Director of Books Department, British Council, by appointment to the Order of the British Empire. Mr Agard Evans has taken an active part in Aslib interests since 1949 when he was first elected to membership of Council, of which he was Chairman in 1953 and 1954. During these years, and since his re-election as member of Council in 1956 and 1959, Mr Evans has given his valuable services to the Executive and Finance, Education, International Relations, Publications and Editorial, Research, and Conferences and Meetings Committees. Also appointed O.B.E. in the New Year Honours list was Mr Richard Offor for his services as Library Advisor to the Inter-University Council for Higher Education Overseas.

Aslib Annual Conference 1961

The annual conference of the International Federation for Documentation (FID), of which Aslib is the British member body, will be held from 6th to 16th September at Caxton Hall, London, by invitation of Aslib.

Aslib will not therefore hold an annual conference in 1961 but all members of Aslib are invited to attend the three days of the FID conference 13th–15th September inclusive, which will be devoted to papers and discussions of matters of particular interest to Aslib members. The remaining days of the conference will be devoted to meetings of the FID Council and its study committees.

The theme of the conference will be 'The importance of information services to the national economy'. This subject will be considered from two points of view: scientific and technological information for research purposes, and economic and administrative information for management. The conference will provide an unparalleled opportunity for members of Aslib to meet their professional colleagues from all over the world, including the United States, Latin America, Asia, and western and eastern Europe.

Some 500 delegates are expected, and members requiring hotal accommodation in the central London area are strongly recommended to make reservations now at least for the nights of 12th, 13th, and 14th September.

A number of companies and institutions have generously agreed to provide receptions and hospitality for delegates and numerous other social engagements are being planned. It is hoped that British members will do all they can to help overseas delegates to enjoy their visit.

Winter Meetings

The speaker at the meeting to be held at 6 p.m. on Thursday 26th January will be Miss Eirlys Roberts, Editor of *Which?,* who will discuss current trends in consumer protection. Tea will be served at 5.30 p.m.

On Wednesday 22nd February a winter meeting will be held at 5.30 p.m. for 6 at the Royal Aeronautical Society, 4 Hamilton Place, London, W1. Mr Anthony J. Barrett, Head of the Technical Department of the Society, will give a talk on the new lecture hall of the Society, which is fully equipped with modern aids to the presentation of information by lecture. The talk will be given in the lecture hall.

Conference on Indexes

A one-day conference on 'Better indexes for technical publications' will be held on Tuesday 31st January at the Connaught Rooms, Great Queen Street, WC2. It will be organized by Aslib in collaboration with the Society of Indexers and will include five sessions covering the following subjects: critical survey of scientific and technical literature by a user of indexes; the viewpoint of the publisher; techniques of indexing books and periodicals; mechanical aids to indexing; and a summary and conclusions. The full programme can be obtained from Aslib. Those wishing to attend who have not already applied should do so immediately to Aslib.

Conference on Technical Libraries

A one-day conference will be held during March in the Connaught Rooms, Great Queen Street, London, WC2. It will be organized by the British Institute of Management in collaboration with Aslib and the subjects for consideration will include the place of the library and information service within an organization, its situation, planning, cost, staffing, and general administration.

The fee will be five guineas, including luncheon and refreshments, to members of either of the sponsoring organizations and seven guineas to others. Further particulars may be obtained from the British Institute of Management, 80 Fetter Lane, London, EC4.

Senior Introductory Course to Information Work

This course will take place at Aslib commencing at 2.30 p.m. on Monday 20th February and terminating at 12.45 p.m. on Thursday 23rd. It is intended for graduate students as an introduction to the basic techniques that they will be called upon to use in information or special library work. The course will include seven lectures by practising experts, a practical session, and visits to various types of library where methods can be studied in operation. The fee for the course is 7 guineas.

Aeronautical Group

A meeting will be held at 2.15 p.m. on Thursday 9th February in the new lecture theatre of the Royal Aeronautical Society, 4 Hamilton Place, London, W1. A film dealing with the 'Black Knight' missile and produced by the Royal Aircraft Establishment Documentary Film Unit will be shown. Following the film Captain I. R. Maxwell, M.C., Chairman and Managing Director of Pergamon Press Ltd, will speak on problems concerning the publication of scientific journals and books. All members of Aslib are invited but those wishing to attend are asked to advise the honorary secretary, Miss M. Dyke, Librarian, Royal Aircraft Establishment, Bedford, as soon as possible.

Engineering Group

Mr J. G. Hall's talk on 'Making the most of what you've got' met with a mixed reception at the group meeting on 30th November. Mr Agard Evans, Chief Librarian, Ministry of Works, commented that he disagreed with the whole talk in principle, but other members said it was just what was needed because 'the people in charge of the smaller libraries are often not those with the most push and initiative—to speak in general terms—and because of their own diffidence they have to learn to exploit meagre facilities'. A synopsis of Mr Hall's talk will be published in the next issue of *Aslib Proceedings*. The sherry party that followed the talk was a great success.

Editorial Practice in Libraries

A long-awaited Aslib publication, *Editorial practice in libraries*, edited by B. C. Brookes, has at last made its appearance. This publication was planned to bear the title 'Manual for editorial workers' but one of the many vicissitudes through which it has passed during production is the change to a more appropriate name. The volume runs to 214 pages and contains chapters by authoritative writers on the various aspects of editorial and production work for books and journals. *Editorial practice in libraries* is available from Aslib, price 21*s* to members, 27*s* 6*d* to non-members.

Index of New Company Registrations

Manchester Central Library has expressed concern about the future of the index to the *Investors' Guardian* list of new companies which is considered an essential tool for any library attempting to provide a business information service. The publishers of the *Investors' Guardian* ceased issuing an index at the end of 1959,* during which year 30,000 new companies are reported to have been registered. Hadley's Indexing Service of Nottingham then attempted to produce a quarterly index at an annual subscription of 20*s*. So few libraries subscribed, however, that after the first two issues the service was faced with the alternatives of raising the subscription to £5 or discontinuing the index. A sufficient number of subscribers have now agreed to the increased subscription to ensure the continuation of the index, but Manchester librarians are anxious that the index should be brought to the notice of potential users in hope that the price may be stabilized for the benefit of all concerned.

**Aslib Proc.*, vol. 12, p. 216.

DSIR Library Guide

The Department of Scientific and Industrial Research has issued a new (1960) edition of a guide entitled *Library guide to selected publications of the grant-aided research associations* giving information on available publications. The guide contains a list of associations arranged under subject headings, followed by publications of each association arranged in the same sequence. The *Library guide* is available free of charge from the Department of Scientific and Industrial Research, Charles House, 5–11 Regent Street, London, SW1.

FID Publications

Three recent publications have been received from the International Federation for Documentation (FID). These are:

Index bibliographicus, 4th ed., vol. 1, Science and technology (FID publication 322), *fl* 20 (£2).

Bibliography of directories of sources of information (FID publication 328), *fl* 10 (£1).

Comparison of the Dewey and Universal Decimal Classification at a minimum three-figure level, by G. A. Lloyd (FID publication 329, reprinted from the *Review*), *fl* 5 (10*s*).

All are available from the General Secretariat, International Federation for Documentation, 7 Hofweg, The Hague, Netherlands.

Research into Information Retrieval

Mr R. A. Fairthorne, of the Royal Aircraft Establishment, Farnborough, will spend nine months, commencing on 1st April, as a Visiting Research Professor at the Center for Documentation and Communication Research, School of Library Science, Western Reserve University, Cleveland, Ohio. His field of research will be into information retrieval with the aid of mechanical equipment and machine-readable abstracts.

James Eaton

We report with deep regret the sudden death on 15th December 1960 of Mr J. J. Eaton, late of the *Evening News*. Mr Eaton was an elected member of Aslib Council from 1945 to 1952 and served on the Publications and Editorial Committee from 1948 to 1953, on the Conferences and Meetings Committee in 1951, and on the Information and the Executive and Finance Committees in 1952. He was also Aslib's Representative in the British Institute of Recorded Sound. Mr Eaton will be greatly missed by all his friends and colleagues.

Humphrey T. Pledge

News has been received with deep regret of the death on 28th December 1960, at the age of fifty-seven, of Mr H. T. Pledge, C.B.E., B.A., Keeper of the Science Library, South Kensington, since 1945. Mr Pledge had been seriously ill for some time. He was an elected member of Aslib Council and of the Information Committee in 1948 and 1949, and returned to the Council as a co-opted member from 1958 to 1960. Many special librarians and information workers must have profited from his help and that of his staff at the Science Library during his thirty-three years of service there, first as an assistant Keeper and latterly as Keeper.

Mr A. G. Mandry

Mr Archibald George Mandry, former Managing Director of Libraco Ltd, died on 12th November 1960 at the age of seventy-seven. Mr Mandry retired two years ago after completing sixty years' service with the company. He was known to many librarians throughout the country who will have received the news of his death with deep regret.

Technical Information Course

A two-year part-time training course in technical information will commence on Tuesday 24th January at the Northampton College of Advanced Technology in London. The syllabus has been drawn up by the Institute of Information Scientists and accepted as suitable by Aslib. It is designed for science graduates, who will be given preference, but students holding Higher National Certificates or passes in appropriate subjects at A level in GCE may be admitted on merit. Classes will be held on Tuesdays and Thursdays from 6.30 to 8.30 p.m. The fee for the course will be £30 or 5 guineas a term. An examination based on the syllabus will be held at the end of each year. Success in both examinations will qualify students for the certificate of the Institute of Information Scientists. Further particulars of the course may be obtained from Northampton College of Advanced Technology, St John Street, London, EC1.

European Translation Centre

The establishment at Delft of an international centre for translations from East European languages was recommended at a meeting in Paris in October 1960 of representatives from twelve European countries, the United States, and Canada. The centre will concentrate, initially, on scientific and technical material. Its objects will be to establish a permanent connection between national centres handling translations and to initiate co-operative studies; to keep an index of translations available and issue a regular bulletin of new additions; and to collect non-commercial translations from countries able and willing to supply them. The centre will be set up at the library of the Technological University of Delft, South Holland, Netherlands. For a short trial period it will rely on the help of the European Productivity Agency with whom the idea originated but will later operate as an independent unit. The United States has already promised to contribute journals and special publications, abstracts, translations, and microfilms. Non-commercial translations collected by the centre will be made available at cost of reproduction plus a small charge for overheads.

West German Translation Information Centre

The establishment has been announced of an information centre to facilitate acquisition and exchange of German-language translations of Slavic scientific and technological literature. The translation information centre of the Bibliothek der Technischen Hochschule, Hanover, is attempting to collect copies of all available German translations of scientific and technical works published in Russian, Czech, and Polish as well as German-language abstracts and extracts. The information centre hopes to be able to provide copies, at cost of reproduction, of translations held and to establish contacts with other centres for obtaining unpublished translations. Further information may be obtained from Dr Wilhelm Grunwald, Director, Bibliothek der Technischen Hochschule, Welfengarten 1, Hanover, West Germany.

Journal of Chemical Documentation

A new publication of the American Chemical Society (ACS) is expected this month under the title *Journal of Chemical Documentation*. The new journal is expected to appear twice yearly and to carry about twenty-five articles in each issue. Articles will, it is hoped, cover all aspects of documentation in chemistry and the scope of the journal will be broadened as necessary to include new developments. Annual subscriptions of $7 for ACS members and $10 (£3 15*s*) for non-members will be accepted by the American Chemical Society, 1155 16th Street NW, Washington 6, DC, USA.

International Congress on Medical Librarianship

The second international congress on medical librarianship will be held in Washington from 16th to 22nd June 1963 under the auspices of the Medical Library Association of the USA and in conjunction with the Association's sixty-second convention. Medical librarians outside the United States and Canada who wish to attend the congress should send their names, positions, and library addresses for inclusion in the congress mailing list to the Executive Secretary, Miss Ruth MacDonald, National Library of Medicine, Public Health Service, 7th and Independence Avenue SW, Washington 25, DC, USA.

Council of Planning Librarians

A new organization, to be known as the Council of Planning Librarians, was set up in Philadelphia in October 1960 in connection with the annual convention of the American Institute of Planners. The council has been organized by a group of planning librarians associated with schools of planning and planning agencies. The programme for the new council includes a manual on operation of libraries in public planning agencies, a list of subject headings in the field of planning, and distribution of exchange bibliographies. The Secretary of the Council of Planning Librarians is Miss Melva J. Dwyer, Librarian, Fine Arts Room, The Library, University of British Columbia.

Florida University Libraries Graduate Assistantships

The University of Florida is offering a number of graduate assistantships in the university libraries during the academic year 1961–2 for study leading to a master's or doctoral degree in a subject other than library science. Stipends of $1700 and $2300 are offered, requiring, respectively, fifteen and twenty hours library duty per week. Holders of assistantships are exempt from out-of-state tuition fees. Applications must reach the Director of Libraries, University of Florida, Gainesville, Florida, USA, not later than 31st March 1961.

NEW MEMBERS

CORPORATE

Name	*Location*	*Representative*
Associated Electrical Industries Ltd	London	Miss F. M. Leete
Communauté Européene de l'Energie Atomique Euratom	Belgium	
Creed & Company Ltd	Croydon	Mrs J. M. Bowerman
Enfield Technical College	Enfield	Mrs S. E. Thacker
English Electric Co. Ltd	Bradford	T. A. Silverwood
Folland Aircraft Ltd	Southampton	P. Whitehead
Girling Limited	Birmingham	J. A. Raper
Hall Green Technical College	Birmingham	P. J. Flavell
Harlow College of Further Education	Harlow	
Harris College of Further Education	Preston	I. Rogerson
Honeywell Controls Ltd	Hemel Hempstead	K. G. Patterson
Microcell Limited	London	K. Lavanchy
Mirrlees, Bickerton & Day Ltd	Stockport	Dr A. S. Morton
Mullard Limited	London	B. J. Driscoll
New Electronic Products Ltd	London	B. Bede
Plessey Company Ltd, The	Romsey	Mrs M. B. Nason
Riker Laboratories Ltd	Loughborough	Mrs M. E. Hutchinson
Robert Gordon's Technical College	Aberdeen	S. R. Latham
Rockefeller Foundation, The	USA	Dr Dorothy Parker
Sandia Corporation Library, CMM	USA	
Sicedison, S.p.A.	Italy	Ing E. Pautrie
Swindon College	Swindon	J. E. Spink
Sydney Technical College	Australia	
Technical Institute, The	Sierra Leone	
Toronto Board of Education, Education Centre Library	Canada	L. H. Freiser
Unbrako Socket Screw Co. Ltd	Coventry	R. W. Drury
York Shipley Ltd	London	E. M. Heap

INDIVIDUAL

Name	*Location*
Allen, D. L.	Shoreham-by-Sea
de Cuevas, J. S. G.	Ruislip
Lockwood, F. G.	London
Nicholson, D. V.	London
Trenaman, Mrs Patricia	London
Uba, D. E.	London
Wallace, Major L. Macquisten	London

THE VALUE OF BUSINESS ARCHIVES TO THE ECONOMIC HISTORIAN*

A. W. COATS, M.SC.(ECON.), PH.D.
Department of Economic History, Nottingham University

Aslib Midlands Branch and University and Research Section of the Library Association, Midlands Group, Birmingham, 26th October 1960

> '. . . by far the largest gap in the materials for history in this country is in respect of business records. It is a gap that could readily be repaired with very little difficulty, very little expense, very little trouble to business men themselves. What the scholars will do with the material when they have got it, is, of course, another question.'
>
> B. R. CRICK†

WITHIN the past few years a small but vigorous and expanding group of scholars has demonstrated a growing interest in business records, and within the next decade or so they and their disciples will present librarians and archivists with some unfamiliar problems. Even if the record keepers resist the demand that they should venture forth to convert the businessmen and gather in the archival harvest, they must necessarily acquaint themselves with the current and prospective uses of these materials. As the main demands will undoubtedly come from business historians, I shall begin by outlining the present status and future prospects of this discipline.

In the USA where, it has been said, 'America's business is business', the study of business history has enjoyed a long and fruitful academic life, although it has often been treated in isolation from, or even in opposition to, general economic history. In these islands, as in France, business history was comparatively neglected until very recently. Since 1958, however, it has received academic recognition in Britain in the form of a scholarly journal (*Business History*, published by Liverpool University Press), the foundation of the Colquhoun Lectureship in Business History at the University of Glasgow, and the issue of an instructional pamphlet by the Historical Association.[1] Those familiar with the inertia of British academic life will appreciate that these acknowledgments constitute no small achievement: business history has, at last, arrived!

My own position in relation to this movement is that of a disinterested well-wisher rather than an active participant. Although my department has nurtured two leading business historians, who now occupy the aforementioned lectureship in Glasgow and the chair of Economic History in Melbourne (Australia) respectively, my own limited qualifications stem from experience as a director and supervisor of several undergraduate and postgraduate research projects in this field. But, at least, I have no vested interest at stake.

There are various reasons why business history long remained a comparatively virgin field in this country, one of the most important of which is ideological.

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* Abbreviated version. † *Aslib Proceedings*, vol. 10, p. 249.

As Charles Wilson, author of the outstanding *History of Unilever* (1954), has written:

> 'the Fabians and Liberals were preoccupied with the shortcomings of capitalism as a means of *distributing* wealth; its virtues as a productive system they either took for granted or forgot. Our economic history has been written from every conceivable source except the records of business itself; and these records might put a rather different complexion on things. Let us not be in too much of a hurry to put on the black cap: there is more evidence to come.'[2]

The prevailing distaste for business enterprise and hostility towards capitalism were hardly conducive to an attitude of co-operation on the part of the businessman. As Professor T. S. Ashton has recorded, 'One recalls at least three occasions on which a request to see some [business records] was not only met by a refusal but followed by a bonfire.' In general 'the businessman has not had much to say for himself. His taciturnity is, indeed, one of the counts against him: evidently he must have a good deal to be silent about.'[3]

In this atmosphere business history languished. Admittedly Manchester University pioneered in publishing several early studies relying partly or wholly on business records, but they dealt mainly with industries (i.e. groups of firms producing a similar product) rather than with individual firms or businessmen. During the 1930s some progress was made, especially when Professor (now Sir George) Clark became Chairman of the Council for the Preservation of Business Archives (now the Business Archives Council) in 1934. But the work of this worthy organization, which was designed as 'a go-between rather than a dump', was seriously inhibited by the lack of academic and financial support resulting from the depression and the ensuing decline in the businessman's prestige. Since 1945, however, possibly as a result of forbearance towards the now tamed and enfeebled dragon of capitalism, there has been a renewed interest in the businessman's contribution to our history. As this interest develops it seems certain that business records will be utilized for a much wider variety of purposes, and in this respect American experience provides a valuable guide.

In the United States the prosperity of the economy, the prestige of the business community, and the study of business history have, roughly speaking, waxed and waned together. In the favourable climate of the 1920s the Business Historical Society (which has published a *Bulletin,* since 1954 renamed the *Business History Review*) was founded in 1925, and a Professorship of Business History was inaugurated in 1927, both under the auspices of the Harvard Graduate School of Business Administration. The publications of this group have included casebooks, guides, bibliographies, and other research tools of great value to scholars, librarians, and archivists. But its historical studies have emphasized 'the intensive study of administration focused on the internal operations of particular companies'[4]—under the influence of the Harvard 'case method' of instruction in business and law—while wider economic and social issues have been neglected. Since the 1940s, however, there has been a tremendous expansion in the volume of American scholarly literature dealing with business and a sharp reaction against the restrictions imposed by the traditional 'company history'. This reaction has inspired repeated efforts to generalize or synthesize the results of past research, although there are still complaints that business history has 'no bible, no handbook, no textbook, . . . no unifying theme'.[5] Nevertheless a multiplicity of new approaches has been developed, and many historians and social scientists now regard business records as an indispensable source of material. As British research in this field expands, some of the American trends will doubtless be followed. Possibly within the next decade or so our amateur writers of 'puff' histories—which have been caustically referred to as 'obituaries of men and firms that are not yet dead'[6]—may be outnumbered, as they now are in America, by serious students of business archives.

Current American research on business records is influenced by at least three distinct viewpoints: economic theory, economic growth, and the social role of the businessman.

Economic theory

This category includes all aspects of business records that illuminate the economist's basic assumptions. For example: What is the nature and extent of competition between firms? What is the relative importance of profits, prestige, power, and security as motives underlying business behaviour? What changes must be made in economic theory as a result of modern marketing and distribution methods?

Such questions as these are of special interest to industrial (i.e. applied) economists, and will be answered by reference to comparatively recent sources. There will also be a growing interest in the history of business management, productivity, and labour relations.

Economic growth

This approach, which is currently all the rage because of the cold war and the preoccupation with backward areas, covers a wide field in which theory and history overlap. At one extreme the individual enterprise can be studied intensively in an effort to trace the sources of its success (or failure) and the factors influencing productivity and morale. At the other extreme business experience may be ransacked with the aim of identifying the contribution of business enterprise (e.g. the 'spirit of capitalism') to economic progress, and this may entail a broad interpretation of the entire economic and cultural setting. Business records may also provide valuable statistical data on wages, prices, output, profits, etc.

The role of the businessman

Here again interest ranges from problems of individual business biography and psychology to studies of large-scale organizations and group decision-making. In addition, social historians and sociologists have undertaken studies of businessmen as a class—their recruitment, evolution, ideology, social role and reputation, and their relationship to society and government—especially in wartime. The concept of 'entrepreneurship' has occasionally been associated with a 'great man' view of history.

The foregoing brief survey is sufficient to indicate that business records can be used to provide answers to a bewildering variety of questions falling within such diverse fields as economics, economic history, sociology, anthropology, biography, and genealogy. I shall now present an even more cursory account of the kinds of material available and their relative importance to the scholar.

Broadly speaking, business archives can be defined as records created in the ordinary course of business and retained for business purposes by those who created them.[7] The quantity of business records available in Britain is obviously unknown, but those familiar with the prodigious volume of paperwork created by modern large-scale organizations are liable to overestimate the available supply of past material. Many business archives have been destroyed either accidentally, by fire, bomb, and flood, or deliberately—for example, on the demise of a firm, on its absorption by another enterprise, in order to save space, or to aid a wartime salvage drive. Moreover, many businesses are suspicious or scornful of the attentions of scholars and refuse to disclose their hoards. Indeed, the supply of early material is so limited that *no business records whatsoever dealing with the pre-1870 period should be destroyed, or rejected by archivists and librarians.* Whenever some doubt arises as to the value of *any* business records earmarked for the flames it is, of course, desirable that those responsible should consult an economic, or preferably a business historian before any irretrievable steps are taken. After the 1870s public limited liability companies became more numerous and a good deal of information survives as an incidental by-product of company legislation.

Much of the historians' interest centres upon individually owned enterprises, family concerns, or small partnerships, and in such cases the residue of material is usually not unwieldy. In the giant enterprises of our own day the amount of paperwork is so enormous that there is much systematic destruction of materials relating to comparatively recent times. However, the problem of co-operation between scholars, librarians and the records departments of large-scale organizations (both public and commercial) are so complex that I can only refer you to the tentative and somewhat vague and conflicting opinions of experts on the subject.[8] On the whole it seems reasonable to assume that although businessmen may show an increasing interest in the preservation of their records as they become more conscious of the public relations value of business history, the supply of new material will not become embarrassing unless scholars, librarians, and archivists conduct a vigorous campaign in the business community. In such an unlikely event additional storage space might be urgently required in the form of some sort of central repository, and this will not be forthcoming without substantial private or public financial support. Here again American experience might prove to be a valuable guide.[9]

Whatever the quantity of the surviving material, its content is likely to be biased in certain respects. Just as the economic historian is comparatively well informed about foreign trade while being grossly ignorant of domestic trade, so the business historian tends to know more about large, successful firms of long standing while the records of failures are less plentiful (though bankruptcy proceedings can sometimes be a valuable supplementary source). Within any company's records, papers relating to litigation and property titles, deeds, wills, etc., tend to be retained; but there is comparatively little material that discloses how and why decisions were taken, or where policy ideas originated—especially in modern business, where much discussion is transacted by telephone or committee and is omitted from minute books. For this reason business and family letters, personal diaries and reminiscences are especially valuable, although sometimes misleading. Similarly modern business records are less revealing on questions of personnel or labour relations than on marketing and distribution, for the last two activities involve a considerable amount of outside correspondence.

It is therefore dangerous to generalize about the relative importance of different kinds of material, especially in view of the wide variety of purposes for which business archives are required. Obviously records dealing with day-to-day affairs and routine inquiries are less valuable than papers arising from special or unpredictable inquiries, which may cover such diverse matters as investigations into legal disputes, patents, trade marks, technical research and development, town planning and river pollution, relations with associates and subsidiaries, pensions schemes and inland revenue or monopolies commission inquiries. Among other valuable materials are reports by outsiders or members of the family (in the case of private firms), letter-books, diaries, accounts, statistical data (especially if systematic and continuous), and day-books.

Such a list may provide a rough guide which can be supplemented by use of the discussions referred to in the references and in the appendix to this paper. My purpose has simply been to arouse your interest in the expanding field of business history and to suggest some of the demands it may eventually make upon librarians and archivists.

APPENDIX

I have received valuable advice in preparing this paper from Dr P. L. Payne, of the University of Glasgow. Most of the sources referred to contain suggestions for further reading, and the pamphlet *Business history*, published by the Historical Association, represents the best starting-point. In addition the following should be consulted: W. C. Chaloner, 'Business records as a source of economic history with special reference to their selective preservation in libraries', *The Journal of Documentation*, vol. 4 (1948), pp. 5–13.

'The publication of business records', *Archives*, no. 6 (Michaelmas 1951), pp. 17–30.

Ralph M. Hower, *The Preservation of business records* (Boston, Mass., 1940).

Many useful articles appear in the *Business History Review, The Journal of Economic History, Explorations in Entreprenurial History* (published 1948–58 by the Research Center in Entreprenurial History at Harvard), and the new *Business History* journal produced by Liverpool University Press.

Some useful addresses

The Business Archives Council, 9 King's Bench Walk, London, E.C.3.

The Historical Manuscripts Commission, The Public Record Office, Chancery Lane, London, W.C.2.

The National Register of Archives, Quality House, Chancery Lane, London, W.C.2.

The National Register of Archives (Scotland), P.O. Box 36, H.M. General Register House, Edinburgh, 2.

The British Records Association (Records Preservation Section), Charterhouse Square, London, E.C.1.

British Transport Commission (Historical Records Dept), 66 Porchester Road, Bayswater, London.

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5. HERMANN E. KROOS, 'Economic history and the new business history', *Journal of Economic History*, vol. 18, 1958. p. 478. This article provides penetrating insights into the current problems of American business history.
6. ibid., p. 470. For an amusing caricature of the businessman's attitude see 'Letter to an industrial historian', *Punch*, 3rd August 1955.
7. cf. R. C. JARVIS, Society of Archivists, *Aslib Proceedings*, vol. 9, 1957. p. 165.
8. See the papers of the First and Second Conferences on Business Records in *Aslib Proceedings*, vol. 9, 1957, pp. 155–76, 193–207; and vol. 10, 1958, pp. 211–26, 235–50.
9. See, for example, the references to the National Records Management Council of New York in RICHARD C. OVERTON, 'Can the records manager help the business historian', *Business History Review*, vol. 29, 1955, pp. 211–17. Also A. H. COLE, 'Business manuscripts, a pressing problem', *Journal of Economic History*, vol. 5, 1945, pp. 43–59.

THE PRICE OF CO-OPERATION

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INTRODUCTION

I HAVE often heard at conferences at which a general resolution in favour of co-operation in the library and information field is put, a reply by Americans to the effect that we all love our mothers and are against sin. It is easy enough to get a conference to agree that co-operation is a good thing, but not so easy to get all the members to agree to take specific steps: there always seems to be some very good reason why somebody should not do something which it is essential he should do if a project is to succeed. No doubt we have all had similar experiences and wondered why it should be that it is so difficult to operate a scheme which is plainly to the general benefit, and no doubt many of us have at times wondered if the game is worth the candle.

Nobody would dispute that any act of co-operation has a value, but if it costs something like that value to carry out the act, then those participating are not likely to have much enthusiasm for the project and will probably take part, if at all, only as a sign of goodwill. There is, therefore, quite a general problem to which there are two solutions—those of keeping the value of co-operation as high as possible and of keeping its cost as low as possible—and I propose to discuss the problem in the light of four particular examples of which I have some knowledge. If I cannot hope to produce complete answers I can at least aspire to point the way to them.

INTERLIBRARY LOANS

Loans between libraries are the most familiar form of collaboration in the information field and the most studied. Various estimates have been made of the average cost of such loans and the only common feature in these estimates seems to be that each of them is higher than its predecessor. The most obvious trouble is the lack of an accepted basis of comparison, some costs being taken into account in one estimate but not in another, while sometimes overheads are included as a percentage of identifiable costs, while at other times they are quite closely assessed and at others again are quite unknown.

Quite apart from the question of what should be included, however, is the difference in costs which arises from different approaches to the problem. One operator will, on being asked for a document he does not hold, automatically go to his usual resource and, if that fails, go on to another, and so on until he finally gets what he wants or is discouraged from further attempts. A second variation is to apply for the same material simultaneously to as many sources as seem desirable, so that the operator may finish up with several copies of what he wants, but will reach the final state much more quickly than the first example. A third, and more intelligent, method of procedure is to consider who is most likely to have what is wanted and to ask them first, proceeding if necessary to the rather less promising sources.

It does not need emphasizing that the third method of procedure is not only likely to produce the desired result quickly, but is also pretty certain to involve lower total costs than the others, and the question which naturally arises is why this method is not invariably used, common observation being that it is not. The answer to the question is almost certainly that this method requires the exercise of more thought and intelligence than the others, and it is so much easier to follow a set routine. In fact interlibrary borrowing is often delegated to juniors, since it is an expensive and often unrewarding task and there is an effort to cut costs as far as possible. Such an effort is likely to defeat its own end, and there is some evidence to show that when this task is undertaken by seniors the cost is actually lower than when it is undertaken by juniors. An interesting scheme was inaugurated at Huddersfield in October 1959 after long preparation by which each of the participants would have the advantages of the commercial, technical and scientific book and periodical resources of all of them by interlending: the expected participants are public libraries and libraries of colleges, societies, firms, and similar organizations. In two months fourteen bodies had joined the scheme: it will be instructive to see how it progresses.

One aspect of the cost of interlibrary lending which has received little attention is the value of the time taken by the operation. This is not surprising, since it is very difficult to assess its value apart from the time of the unit processing the loan. At the lowest level there is the value of the time of the research worker who asks for the information, but he, like the library staff, is not sitting down and doing nothing while he is waiting for it, although he may occupy himself on a job that would be obviated if the information were to hand. It may be that the completion of the job on which he is engaged is held up for lack of the information, and occasionally this happens when the research worker himself could obtain it at the cost of half a day out of the laboratory; when a job is held up in this way the cost can be enormous even though everybody is working away busily all the time. The value of time, then, is apt to be considerably greater than all other costs put together but is extremely difficult to assess.

At the other end of the gamut there are a number of routine procedures which have been considerably studied, probably because they are easily attacked. There is the use of pro-formas, and their layout, the profitability of the use of multiple stationery, and the use of the telephone. Not everyone who has studied one or more of these has come to the same conclusion, but it does seem that there should be little difficulty in arriving at a definitive answer. The trouble is that this is nibbling at details while major issues go unattended.

ABSTRACTING

Abstracting is certainly a task which, when unrelieved by other work, is as monotonous and can be as depressing as any in the information field. At the same time it is a necessary task and we find a great many people engaged upon it. With the volume of material which is published—or otherwise produced—every week one would think that here is an ideal field for collaboration with the idea of making sure that as much as possible is abstracted once and nothing more than once. Yet, when we come to look into details, we find that there is a great deal of duplication and at the same time there are many papers which are never abstracted at all.

Let us consider how this comes about. To take a field which is as well documented as any—that of chemistry—we have *Chemical Abstracts*, known the world over as a comprehensive and thorough abstract bulletin, with very good arrangements for indexing. We might well say that there is no need for any other abstracting of published information on chemistry, but in fact in this country we have a number of bulletins which cover a part of the field, duplicating a part of *Chemical Abstracts*, for example *Analytical Abstracts* and the *Journal of Applied Chemistry* abstracts. Why should this be? The short answer is that there is a demand for them, and for this demand there are a number of reasons. For one, as a member of the Society for Analytical Chemistry I receive *Analytical Abstracts*: I can afford my subscription to the Society or I could even buy *Analytical Abstracts* (with indexes) for five pounds a year for about 5,000 abstracts—about a farthing an abstract. *Chemical Abstracts* is now running at about 120,000 abstracts a year, which is also about a farthing an abstract (without the indexes), but they include only about 3,000 abstracts a year on analytical chemistry, which would be about tenpence an abstract. Moreover, the price of *Chemical Abstracts* is being increased to £229 a year, which is about 1.5 farthings an abstract on the 146,000 abstracts promised for 1960, but I could not afford to buy *Chemical Abstracts* even at the old rate of £120 (without indexes). Again, a published bulletin contains abstracts of papers published some time earlier—the elapsed periods vary from about six months upwards—and many users need more rapid information than this; consequently many organizations do their own abstracting in their own field because they reckon that the time saved is worth the extra expense.

Another very serious factor is the language problem. The best and quickest abstract in the world is useless if the user cannot read it, and hence in the field of chemistry we have independently produced abstracts in a number of countries: for example, the Chemistry section of the *Referativny Zhurnal* in Russia, which is not greatly inferior to *Chemical Abstracts*, and the *Chemisches Zentralblatt* in Germany.

Here, then, are four major reasons for the duplication which exists: the cost of a comprehensive service, the time lag in the appearance of abstracts, the fact that a comprehensive service may be in an unfamiliar language, and the fact that a comprehensive bulletin occupies space which can ill be spared and takes additional time to search because the useful material is much diluted with other which is not relevant.

If the language barrier be neglected for the time being there is no obvious reason why the cost and bulk of the comprehensive bulletin should not be avoided by breaking it down into sections, just as in fact the *Referativny Zhurnal* is sold in thirteen separate parts.

The language barrier is a more serious matter. Even if we supposed a perfect abstract bulletin in one language to exist, would it be universally accepted? There are several answers to this question, but in the field of chemistry if you wish to know if there was a paper on a particular topic published, say a hundred years ago, perhaps by a known author, you refer to the *Chemisches Zentralblatt,* not because it is perfect but because there is no alternative, and if you are a chemist you need to know enough German to be able to do so, or at the very least to be able to use Beilstein, so that the language barrier is one that is in fact overcome when the need arises. The necessity for some knowledge of German arises because in the last century the great bulk of publications on chemistry were in that language, and if the majority of publications on any subject are at any time in one language, those who practise the subject need to have some knowledge of that language, and an abstract bulletin in that language becomes acceptable, at least if there is no reasonable alternative. Of course it is quite possible to translate abstracts and this is now being done with many of the Russian abstracts of Russian original papers, but the process is a difficult one which is seldom entirely satisfactory and the finished product is not always easy to understand; in addition, a considerable further delay in availability is unavoidable.

Let me tell you of some experiences in a particularly favourable field—that of aeronautics. The field is favourable because there is at present no comprehensive cover and the bulk of present-day publication is in English; there are available *Index Aeronauticus,* the so-called *International Aeronautical Abstracts* and *Aeronautical Reviews* of the (US) Institute of the Aeronautical Sciences, brief abstracts published in the *Bulletin signalèteque* of the French SDIT (Service de Documentation et d'Information Technique de l'Aéronautique), the Italian *Bollettino bibliografico,* and many others such as the journal *Aircraft Engineering, Applied Mechanics Reviews,* etc., together with collection of abstracts prepared by the German Zentralstelle für Luftfahrt Dokumentation, by the Dutch National Laboratory for Aeronautics, and by the Royal Aeronautical Society, and some abstracts in the Mechanics section of the Russian abstract journal. All these organizations, except the Russian, are and have for years been willing in principle to collaborate to produce a single comprehensive aeronautical abstract bulletin and all except the French and the Russians are satisfied that it should be in English, but the single comprehensive bulletin has not appeared and at present shows no sign of doing so. There is a system of bilateral exchanges of abstracts between several of the interested bodies but it is complained that these combined abstracts arrive too late to be really useful and it is found that everybody makes separate abstracts of the leading papers while the more obscure ones are not abstracted at all. It has been suggested that the more obscure publications should be covered by countries which have little publication of their own, so that each participating country would contribute to a pool its share of abstracts and receive from the pool a much larger number which would not otherwise be available; then any country could produce its own bulletin or, much better, the pool could produce a comprehensive bulletin and distribute copies to the participants.

All this has been accepted as an excellent idea, but the results have been almost negligible—one country would have to produce abstracts in its own language apparently to satisfy national pride, another would have to produce a bulletin immediately after publication of the original articles, and a third disagrees about the style of the abstracts; also, although this is never admitted, all the organizations concerned are loth in the extreme to cease production of their own bulletins as a matter of prestige.

I have given this account at some length because it illustrates the difficulties which arise even when there is genuine goodwill. Now let me mention the chemical field again: for some years *British Chemical Abstracts* was produced; it was reasonably comprehensive, the abstracting was satisfactory, it was sold separately in the various sections, and it covered the same field as *Chemical Abstracts*. Also it did not pay, although it received some modest subsidies, so it proposed co-operation with *Chemical Abstracts*, which was refused. *Chemical Abstracts* took the view that there was room for only one bulletin in the field and that it was best produced by a single central organization. *Chemical Abstracts* is now almost alone in the field so far as the English language is concerned, it has an excellent central organization, it is much improved, and it will cost ten times as much as it did ten years ago.

One large organization should be capable of turning out a better job than a series of small ones, and *Chemical Abstracts* demonstrates that this can be done. Once the one large organization exists, it pays others to co-operate with it, but the large organization may well not wish to bother about co-operation—it is convinced that it can do a better job by itself, having departments appropriate to all branches of its business. This goes on until the large organization becomes top-heavy and considers its customers less than its own welfare: then the small bodies once again come into their own, producing specialized bulletins quickly and comparatively cheaply. Whether the giant falls is an open question, but the *Chemisches Zentralblatt* (now publishing about 75,000 abstracts a year in weekly issues) has been running ever since 1830.

One of the problems of co-operation is that it tends to build up the giant and initial high ideals are liable to fade away; they need not do so, but Lord Acton's celebrated dictum about the tendencies of power has much force.

In a somewhat different field the ICSU Abstracting Board maintains a continuous battle to persuade authors always to supply abstracts of their papers and editors of periodicals always to include abstracts of the papers published and not to claim copyright of these abstracts, at least so far as members of the Board are concerned. Editors, moreover, are asked to send advance copies of their publications or cuttings of the authors' abstracts to the Abstracting Board. Bodies in different countries are asked to assist in tracking down irregular publications and to discourage their production. These aims are serious and sensible and do not impose a heavy load on the participants, but at present a few hundred periodicals out of upwards of twenty thousand comply with the Board's requests, and ICSU no more than any other body is able to maintain a really comprehensive abstract service.

INDEX CARDS

If the rather laborious business of co-operative abstracting involves great difficulties, can the much simpler one of producing and using common index cards be the subject of a successful project? The answer is of course that it can, as witness the Library of Congress cards in the United States, but that very often it fails in some way as several schemes have failed in this country.

For co-operation with index cards to be successful it is necessary to have initial agreement on the size of the cards and on the essentials of what is to be put on to them; agreement on the arrangement of their content is highly desirable, though not essential. All this is quite simple—or seems so until you try to put the exercise into effect, at which stage unexpected difficulties begin to crop up.

In this country 5×3 in. index cards are in quite general use and in the US they are all but universal, though there they are called 3×5 in.: we also have 6×4 in. and 8×5 in., while on the continent of Europe 125×75 mm. corresponds quite closely to 5×3 in. but the ISO sizes, of which A6 (149×105 mm.) is the most frequently used for indexing, do not agree with any of our sizes. So far as this country and the US are concerned it is not too difficult to agree upon the 5×3 in. size.

Nearly everyone will agree that the cards need to include the title of the paper indexed, the name of the author, an indication of the subject dealt with and one of where the paper came from, which we may call the corporate author: this may be a book reference, a periodical reference or a report reference. It is less easy to reach agreement on whether an abstract of the paper should be included, but few will object to its presence provided they do not have to do the abstracting. If the paper is a report, it may have been produced under a contract, and in that case it would be useful to include a reference to it on the card, and other useful things are the numbers of pages, tables, figures, and references. All this has been agreed and international standards drafted, though you would not believe this from the look of some index cards.

Co-operation can be at several stages. The original publishers can include index cards in their productions; users can adopt a standard size, content, and layout; a central organization can provide cards to all who need them.

So far as action by publishers is concerned, in this country this is practically unknown for material published in the ordinary sense of the word: publishers seem to delight in individualism and anything smelling of standardization or co-operation is anathema to them—sometimes it seems that consideration of their customers comes in the same category. However, for unpublished reports the position is brighter and quite a number of these do include index cards which can be cut out and filed.

This is satisfactory, so far as it goes, to those who hold the reports, but many users have to be content with borrowing or may wish to index material they do not hold so that they know what to ask for when the occasion arises. Some foreign publishers cope with these requirements by including indexing material printed on translucent paper, so that any number of photographic copies can be taken off and cut to size, a development which does not seem to have been tried here.

These efforts by publishers vary in efficiency; some include all the information which could reasonably be required, not forgetting an abstract, while others give only a very bare minimum, but they seem to have less variation in arrangement than do the cards in indexes which one commonly sees.

'Semi-published' reports not infrequently contain abstract cards which can be cut out and used by readers, and here again there is a wide opportunity for variation in content and layout. However, there is some approach to uniformity, and as there is a general custom of underlining on a card the word or number under which it is to be filed, minor variations can be fairly easily assimilated. There is the system, widely used in the US, of having a margin on the right-hand side of index cards in which the indexing points are listed, but this is little used elsewhere, largely because the margin encroaches upon the space available for abstracts, so that the marginal cards very often have very short abstracts or none at all. It would be quite possible to put all the indexing material (including title) into the margin in a standardized order, leaving the remainder of the card for the abstract, but this does not seem to have been tried, probably because it would be necessary to look quite closely at the margin in order to identify the indexing points, which would take longer than the present system does, and the aim of American methods appears to be to reduce time taken over operations because of the high cost of manpower there: efficiency in the retrieval of information often seems to be a secondary consideration.

If a large proportion of the publication in any field comes from a single source and that source provides index cards in its reports, there is of course a considerable tendency for its standards to be accepted by users simply because the acceptance saves them the trouble of preparing their own index cards, at least when the cards are provided gratis and when they are compatible with whatever index cards were previously used. There is, however, a limitation on the usefulness of cards included in reports, since they can only be provided to those who receive the reports. In many cases it is very useful to have index cards for reports which are not held, provided that there are no difficulties about procurement, since pressure on space is an important factor in most libraries, and the reports then need not be obtained until there is a positive demand for them.

Adoption of a standard size and layout, then, is not too difficult when large quantities of cards are going to be supplied gratis from a central organization, because the financial advantage is likely to outweigh the reluctance to change a system which has become hallowed by usage. The more intransigent operators may stand out and cut off their noses to spite their faces, but they are not likely to be numerous. When, however, the number of cards it is expected to obtain gratis is of the same order as that which it will still be necessary to produce, natural conservatism comes to the fore and a balance point is reached which varies with different people. Some are fairly easily convinced that the new system is better than their own (though some of these do not change because of the vested interest of their mass of accumulated material) but others are so accustomed to their own cards that they fail to see the merits in any others.

When it comes to paying money for cards produced elsewhere reactions are usually much firmer, although some people have been convinced by the layout of index cards which they have bought. There have, of course, been schemes for selling ready-made index cards to librarians, and several of them have come to nothing; others, however, have proved to be successful, such as that run by the Library of Congress. It may be that national characteristics are an important factor in the viability of schemes for selling index cards, for there are at least half a dozen operating in Germany, issuing anything between fifty and six hundred cards per month. In Russia, too, index cards are sold which cover at least half the publication of books and serious periodical articles, but as the enterprise is run by a Government agency (like all others there) the financial aspect presents no problem.

The payment of money for index cards raises very forcibly the question of cost, although very few organizations which produce them have any idea of the

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cost per card, however much inducement there may be to know this figure. In fact it is usually not at all easy to determine and when there is an offer of ready-made cards at, say, sixpence each, it is more usual to guess that this is, or is not, a reasonable figure than to know that one's own cards cost half-a-crown each (largely because only perhaps eight copies are made). In point of fact it is quite usual for abstracting an item, preparing the cards, and filing them to cost about a pound.

In this comparison the purchased cards appear at first sight to have an enormous advantage, but this is not really as great as it might seem, since on nearly all these schemes (though not in the Library of Congress one) one has to have all the cards that are offered, at least in a selected field, and there is not much joy in buying two hundred sets of five cards a month if you really only want fifty sets. In this case, however, at sixpence a card the thousand cards would cost £25, whereas to produce fifty sets would cost about twice as much, and sorting out and discarding the unwanted cards from the purchased sets would not cost much. Even so the comparison is not truly straightforward, for the question arises of what the staff would be doing if they were not producing the fifty sets of cards a month: if they had to be paid without producing anything useful it would be economical to use them to produce cards at quite a high price per card—not that this situation is likely to exist in the organizations of any of my present audience.

An instructive situation arises when there are several organizations issuing cards in closely related fields. A German survey of cards issued from fourteen different sources to a total of 47,000 per year showed that in 4,266 cards in one field of interest 3,115 of them referred to items covered by only one of the organizations, whereas 1,151 of the items were covered by two or more. It seems that card producers could with advantage undertake some collaboration with each other, but no doubt their commercial interests or prestige would preclude them from any such measures.

TRANSLATION POOLS

Perhaps no aspect of co-operation is more obviously desirable than the use of translation pools. When it is considered that the cost of translating from a foreign language is likely to be a pound or two per page, there is every inducement to avoid this cost if it is at all practicable to do so, and a reasonable amount can be expended on the effort and profit shown on quite a modest margin of success, quite apart from the satisfaction of having avoided a waste of effort.

The basic procedure is simple and obvious enough. Before starting on a translation one consults the likely sources to see whether the paper in question has already been translated, and to save the trouble of multiple inquiries there are some consolidated collections of information, if not of translations. The first of these is the Aslib Index, the second is the SLA index at the John Crerar Library, and a third is the US Department of Commerce *Technical Translations* monthly.

The first inquiry costs only a telephone inquiry and a couple of minutes; the second costs at present a letter to Chicago and about a fortnight to await a reply, while the third, being quite new, is up to date and well indexed but not cumulated in a readily accessible form, so that searching may take some little time.

Is it worth it? If the average translation costs £10, and the average proportion of 'hits' in consulting an index is 10 per cent, then 18*s* can be spent on inquiries and procuring a copy of a translation if it exists. If you have to pay £5 to buy a copy of the translation, then you can afford to spend 10*s* on searching for it. It is not difficult to see whether it is worth using the translation indexes, and yet there are many who do not do so. Let us look further into this.

Rejecting with scorn the argument that some loss is sustained in letting it be known that you wish to have a translation of a particular paper, we usually come to the case of the man who wants his translation at once and cannot wait for inquiries to be made: inquiries may delay the start of the work of translation by a little and hence the completion in 90 per cent of cases, but the 10 per cent of hits produce the goods before the new translation could be finished.

A more reasonable argument is that the paper in question has only recently been published and hence no translation can possibly be in the indexes as yet: fair enough, but if the indexes were taken seriously the co-operators would inform them as soon as a translation was *started.* Some few operators do this now, but they are unfortunately few. *Technical Translations* has a list of fifty to one hundred translations in progress, however, and this is always worth consulting: there is, by the way, no indication of who is doing the translating.

It is also always worth making sure that the paper in which you are interested is not included in a 'cover-to-cover' translation of a periodical: there is a list of these also, not quite complete, in *Technical Translations* and this and LLU should be consulted. This, however, is not the end of the matter, since it is likely to be the best part of a year before the cover-to-cover translation is issued, and the inquirer may not be able to afford to wait so long, in which case some duplication may be justified, at least to the extent of a rough oral translation.

As a practical measure it is always worth knowing the major organizations which do not contribute to the translation pools. If an inquiry to the pools draws blank it is profitable to consider whether some large organization is likely to be interested without telling the pools, but of course this requires considerable exercise of the intelligence; the proportion of 'hits', however, can be quite encouraging.

Another way in which the intelligence can be used is in considering the make-up of the various collections of translations. Some are new and unlikely to include many translations of old papers; some have some considerable degree of subject specialization and others of language specialization. Such considerations can materially increase the proportion of 'hits' in inquiries and lead to approaches to actual translators rather than to pools, and it is a noticeable fact that the larger a pool is, the higher the proportion of 'hits' in the inquiries made to it; at the same time, of course, the greater the cost per inquiry to the pool though, as they nearly all function as philanthropic institutions, this is not likely to concern the inquirer overmuch.

CONCLUSION

When we look into specific instances of co-operation in information work we can hardly fail to be struck by a host of circumstances which affect the effectiveness of the co-operation; these circumstances are obvious enough when we come to consider them, but are all too apt to be overlooked when we take a rapid glance at the subject. They may, and often do, make all the difference in the world to the effectiveness of co-operation and can make it impracticable or easy according to whether they arise or not.

Some of these circumstances can be avoided without much difficulty at the expense of a little thought, but some are major stumbling blocks and if I cannot claim to have made any great contribution to their removal, I may hope to have brought some of them out of obscurity and at least have given some reasons why co-operation is apt to cost more than one would think.

DISCUSSION

The Chairman, Mr F. H. Smith (Royal Aeronautical Society), queried whether the cost of a research worker spending time out of his laboratory could be equated with the cost of his inquiry, and Miss M. Surry (Westinghouse Brake & Signal Co. Ltd) remarked that it was a common attitude of mind for a research worker to state that an inquiry was urgent but not to be prepared to search for the answer himself. Mr Holloway agreed that research workers tended to think that time spent outside the laboratory was wasted, and that such an attitude was unjustified.

Mr D. Newcombe (Institution of Mechanical Engineers) pointed out that many research workers simply did not know where to begin to look for information.

Mr Holloway said that the facts varied in different fields. Many chemists, for instance, had a working knowledge of German and of sources of chemical information, but engineers in general made far less use of recorded information.

Mr J. L. Robinson (Water Research Association) said that it was not always the case that what we were looking for existed, nor that an article for which a translation was requested contained the desired information. On the question of abstracts, it was doubtful how many abstracts in an issue of *Chemical Abstracts* were of interest to any individual; it was necessary to scan a vast number of abstracts to discover the few of interest. This raised the question of whether an abstract should be indicative or informative.

Mr Holloway commented that abstracts were written for people with differing interests, and that an abstract should contain enough information to tell a reader whether or not the article in question was of interest to him.

Miss K. E. Watkins (Patent Office) recalled a personal encounter at the Patent Office with one who had been a research chemist for ten years without having heard of *Chemical Abstracts*. She suggested that a possible inducement for research workers to visit the Patent Office Library themselves was the fact that the references at the end of any article could be consulted on the spot.

The Chairman remarked that requests for loans were often left in the hands of junior assistants to try likely sources, and wondered whether this was desirable.

Mr Holloway thought it depended on local circumstances, but that it was certainly true in general that juniors could waste time trying likely and unlikely sources, whereas a senior could quickly indicate the most likely source. In his own library, the nature of the inquiry decided what grade of assistant dealt with it.

Mr T. I. Bell (Royal Aircraft Establishment) made the plea that where index cards were supplied with a publication, room should be left on the card for the recipient's own classification symbol.

Mr J. Bird (Morgan Brothers) felt that not enough emphasis was placed on the variations of approach by different individuals to the same literature, and that it was questionable how much time was saved by using other people's index cards. One of the most valuable assets of a library was an experienced person at the centre of things, sifting inquiries, deciding whom to approach for loans, whether the material requested even existed, whether the likely result was worth the expected effort, etc. On the subject of publishers' co-operation it was important to distinguish between book publishers and periodical publishers. His own firm was well aware of the desirability of informing others of what it was publishing.

Mr B. Agard Evans (Ministry of Works) thought that too often the subject of interlibrary borrowing was discussed for the sole purpose of proving that its cost was too high to justify it, and therefore reminded the meeting of the strictly objective basis of the current investigation into the costs of interlibrary loans being carried out by the Aslib Research Department. His own experience suggested that any co-operative venture, even if it did not achieve its original stated aims, produced incidental advantages such as knowledge of sources of information and personal contacts, which justified the effort involved.

Mr Holloway accepted the objective basis of the Aslib Research Department's investigation; the usual drawback to such surveys was that they tended to approach the question from different standpoints and laid varying emphasis on the factors involved. He agreed that any sort of investigation had value in terms of the incidental advantages gained.

Mr C. R. Argent (Water Research Association) wished that libraries lending material would indicate to the borrowing library if the material lent was to be in the form of a thick, heavy, bound volume; in such cases a photocopy of the relevant article would be more acceptable. There was also undesirable variation in the procedures for requesting material from the major sources of loans, such as the National Central Library and the Science Library.

Mr. Holloway agreed that more collaboration in the design and use of printed forms was highly desirable.

Miss G. E. Lockie (Ilford Ltd) also agreed that lending libraries should warn the borrowing library if it was necessary to send a bulky volume and indicate the likely postage cost. On the earlier question of persuading research workers to visit the Patent Office Library she felt that such workers would prefer an introduction to a specialist library in their field, where they could be shown all the material relevant to their research.

Mr D. Newcombe commented that government libraries seemed to be ignorant of each other's functions and activities.

Mr Holloway thought this was true to a certain extent. There was a tendency to ignore the 'chap across the street' and to believe that no other departmental library was as good as one's own library. This attitude of mind needed to be changed.

Mr R. H. Hetherton (Metal Box Co. Ltd) said he had gained the impression that the problem of co-operation was not an urgent one calling for prompt action. He asked whether the speaker would agree or comment on the fact that everything had been attempted on a wholesale scale instead of being broken down in terms of particular industries, and that *Chemical Abstracts,* for example, had outgrown its usefulness.

Mr Holloway agreed with this observation and stressed the need to encourage the more specialized abstracting services, such as *Analytical Abstracts.*

The Chairman thanked those who had contributed to the discussion, and thanked Mr Holloway for providing such a stimulating paper.

Letter to the Editor

Editor
Aslib Proceedings.

In your correspondence pages concerning Translators' problems, many if not all of your correspondents are hopelessly out of date.

For many years past it has been laid down that wherever possible no German word should contain more than fourteen letters.

A. V. HARRIS,
22 Abbotstone Road,
London, S.W.15.

22nd December 1960.

SELECTIONS FROM THE RECENT LITERATURE

ALL ITEMS listed may be borrowed from the Aslib Library, except those marked *, which may be consulted in the Library.

Books and Pamphlets

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WILFRED E. GOODAY, ARSM, DIC, MIMM, FIL. Technical translation from French and Roumanian. 161 Rivermead Court, London, SW6. Renown 1912.

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ASLIB PROCEEDINGS

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Volume 13 February 1961 Number 2

ASLIB CALENDAR

March

WED.1. Film Production Librarians' Group meeting at Shell-Mex House.

Economics Group visit to Royal Institute of International Affairs.

TUE.14. BIM and Aslib conference on new technical libraries in industrial organizations.

WED.22. Economics Group annual general meeting.

Winter meeting. Mr Anthony Nicholls on problems of small technical information services.

TUE.28. Course on compilation and production of information department publications.

WED.29. Midlands Branch annual general meeting in Birmingham.

April

WED.5. Film Production Librarians' Group meeting at Shell-Mex House.

THUR.20 – SAT.22. Northern Branch conference at Durham.

FRI.21 – SUN.23. Electronics Group annual conference at Ashridge College.

TUE.25. Winter meeting.

July

THUR.13 – SUN.16. Aeronautical Group annual conference at Cranfield.

FRI.21 – MON.24. Northern and Midlands Branches conference at Stafford University.

September

WED.6 – SAT.16. FID conference in London.

Third Conference on Business Records

Aslib's third conference on business records will be held on Thursday 11th May in the Connaught Rooms, Great Queen Street, London, WC2. The special purpose of this conference is to stimulate active interest in the importance of correspondence as a basic source of information. There is evidence that control of correspondence is still one of the major administrative difficulties in organizations of all types. The programme, which has been planned by representatives of Aslib, the British Institute of Management, the Institute of Office Management, the Chartered Institute of Secretaries, and H.M. Treasury (O & M Division), will fall into four parts: *i,* an introductory paper discussing the subject from the administrative point of view; *ii,* a survey of procedures, based on a questionnaire recently sent to a representative selection of Aslib members; *iii,* a paper on training personnel for business records work; and *iv,* a summary of the proceedings with special reference to the problem of who should control correspondence records. The Chairman will be Miss Barbara Kyle, Assistant Director, National Book League, and among the speakers there will be Dr C. H. Thompson, Records Officer, National Coal Board; Mr Wilfred Ashworth, Librarian and Information Officer, British Nylon Spinners Ltd; and Mr L. H. Bunker, H.M. Treasury (O & M Division).

The two earlier conferences on business records were held in March 1957 (*Aslib Proceedings,* vol.9, pp.155–76; 193–207) and June 1958 (*Aslib Proceedings,* vol.10, pp.211–26; 235–50).

Northern Branch

Two residential conferences are planned. The first will be held from Thursday 20th to Saturday 22nd April in St Mary's College, University of Durham, and will, it is hoped, include the Annual General Meeting. The second will be a combined conference of the Northern and Midlands Branches from Friday 21st to Monday 24th July at Keele Hall, University of Stafford, Stoke.

Electronics Group

The third annual conference will be held from Friday 21st to Sunday 23rd April at Ashridge College. There will be three sessions on the subject—electronics, and two on the job—librarianship and information work.

The speakers at the subject sessions will be: Mr G. W. A. Dummer, Royal Radar Establishment, on 'Modern developments in components for electronic equipment'; Mr A. Watts, Mullard Organization, on 'Applications of semi-conductors'; and Mr E. W. Houghton, Royal Radar Establishment, on 'Some uses of radar.' Mr Houghton's talk will be illustrated with the film *Ring angels.*

One of the sessions on librarianship and information work will take the form of a discussion entitled 'Books' led by Mr J. E. Wright, Librarian, Institution of Electrical Engineers; the other will be a talk by Mr Gordon H. Wright, County Technical Librarian, Hertfordshire, on 'Training the library user'. This problem has concerned special librarians for many years but systematic training of users to make the best of library facilities has in fact been carried out in many technical colleges.

The Annual General Meeting of the Group will be held during the conference and the facilities at Ashridge will encourage informal discussions outside the official programme. Application forms and programmes will be distributed with the March issue of *Aslib Proceedings*. The fee for the conference will be £7. Further particulars may be obtained from Mr N. E. C. Isotta, Ministry of Aviation, TIL2, First Avenue House, High Holborn, London, WC1; telephone Chancery 6888 extension 1242.

A short article on Ashridge College is published on pages 47–8.

New Keeper of the Science Library

Mr J. A. Chaldecott, Deputy Keeper in the Department of Physics in the Science Museum, South Kensington, has been appointed Keeper of the Science Museum Library in succession to the late Mr H. T. Pledge. Mr Chaldecott is the author of the museum handbooks *Temperature measurement* and *Heat and cold* and editor of *The Science Museum: the first hundred years,* a centenary volume. He was responsible for arranging and cataloguing the George III collection of scientific instruments in the museum.

Technology of the Textile Industry

The Textile Institute announces publication of the first bi-monthly issue of a cover-to-cover English translation of the Soviet journal of technical progress and research in the Russian textile industry, *Tekhnologiya Tekstil'noi Promyshlennosti.* The translation is sponsored by DSIR and will be edited by specialists in organizations associated with Aslib Textile Group, under the general editorship of Vernon D. Freedland, A.T.I., M.I.INF.SC. This first issue will be a translation of the Soviet journal of January/February 1960. *Technology of the Textile Industry (USSR)* will be available from The Textile Institute, 10 Blackfriars Street, Manchester 3, at an annual subscription (six bi-monthly issues) of £7 ($21) post free, or 30*s* ($4.50) per copy.

British Education Index

The Library Association has announced publication of the first printed cumulation of the *Index to Selected British Educational Periodicals,* compiled by the Librarians of English Institutes of Education. This is the first volume of a subject index to education articles in British periodicals. Some fifty periodicals are covered and relevant articles from other, non-educational, periodicals are also included. The title of the new cumulation is *British education index: August 1954 to November 1958.* It is intended that further cumulations shall be issued at regular intervals.

The *British education index* is obtainable from the Library Association, Chaucer House, Malet Place, London, WC1, price 52*s* ($8) or 39*s* ($6) to members of the Library Association. Postage 1*s*.

Problems of the North

The National Research Council of Canada has published the first issue, dated December 1960, of *Problems of the North,* a complete translation of the Soviet journal *Problemy severa,* originally published in 1958. The Canadian translation of numbers 2 and 3 (dated 1959) will appear during the current year and it is hoped that translations of number 4 and subsequent numbers will be available within a few months of the receipt in Ottawa of the original journal. *Problems of the North* is available from the Translations Section, the Library, National Research Council, Sussex Drive, Ottawa 2, Canada, price $7 (50*s* approximately) per issue post free; single copies at $1 (7*s* 2*d* approximately).

Museums Directory of the United States and Canada

The American Association of Museums has announced publication of a *Museums directory of the United States and Canada* which comprises a list of more than 3,000 institutions and claims to be the first comprehensive work covering the entire museum field in these countries. Entries include name, address, and telephone number, name of director or other executive officer, major collections and special holdings, special activities such as educational courses and classes, open hours and admission charges, and types of publication. *Museums directory of the United States and Canada* is obtainable from the American Association of Museums, Book Department, Smithsonian Institution, Washington 25, DC, USA, price $7.50 (54*s* approximately).

PRESENT TRENDS AND CHANGES IN ANIMATION FILMS

JOHN HALAS
Halas & Batchelor Cartoon Films Ltd

Film Production Librarians' Group meeting, 2nd November 1960

THE significant factor about the film industry during the past few years is the sudden revolution in cinema presentation. Whilst great battles raged over the shapes of cinema screens, from Cinerama and CinemaScope to Cinemiracle, another revolution has taken place. But this has passed practically unnoticed. No headlines, no posters to publicize this event. It is the incredible expansion of the animation film industry all over the world.

In Western Europe and in North America, production has increased several times over the 1950 output, whilst east of Germany new centres of production have emerged, particularly in Poland, Yugoslavia, Rumania, and even as far afield as China. In England, too, output has risen threefold in the last few years, with an increase of personnel from one hundred and fifty to approximately six hundred artists. This expansion is comparable to the sudden growth of live-action production during the period of 1922 to 1926. An interesting factor about this expansion is that it has taken place at a time when the world output of live-action has gradually decreased. It must, however, be realized that, even with the present expansion, animation forms only a small part in the total structure of the film industry, although creatively a vital one.

The reason for the increased demand is not entirely the new opportunities that television has created for this medium. Television has helped only cartoonists in the western countries; in the east, other influences are apparent. For instance, in Czechoslovakia, Yugoslavia, Poland and China, animated cartoons and puppet films are fostered as national arts and, as a result, such productions enjoy direct state sponsorship in the same way as our Old Vic theatre. Similarly animation in Russia is integrated into the national film programme, and plays quite a considerable part in providing entertainment for the younger generation. The Moscow cartoon film studio now numbers five hundred and fifty artists and, as in other eastern countries, the cartoon industry is still in the process of expansion to provide more and a wider variety of entertainment films. On the other hand, in the United States, Britain, and France, animated film production for theatrical entertainment has, if anything, receded. Against this, new avenues have opened up for animation in the form of industrial sponsorship—sponsorship through international authorities for informational cartoons—advertising films for cinemas and television, and entertainment programme films for television. These new sources of work have attracted some of the leading artists previously engaged on theatrical films, as well as quite a few talented artists from outside the film industry. However, it must be realized that, here in the west, the revenue from cinema cartoons has dropped so drastically that it is becoming impossible to recover the high cost of production. Animation therefore depends increasingly on the other sources of sponsorship. The fact that an expansion is in progress proves how much the public enjoys and appreciates this medium.

The medium of animation at its best can be an important factor both in the creative cinema and in graphic art. In such categories the quantitative expansion of large footages turned out in many countries matters little. The inquiring mind of an experimentalist or an uncompromising attitude of an artist with his pencil matters more than large output. The spirit of experimentalism against heavy odds is typical of this medium, but, on the other hand, it is significant to notice that the masters of this medium are possibly the last remnants of guild art craftsmen remaining in our century.

The elements of an animated picture—story, movement, time, colour, design, texture, sound, and free imagination—are apparent in different territories to widely varying extents. For instance, we are accustomed to expect excellent timing, expert animation, and sufficient imagination, mainly in comic-strip technique, from the USA, but it is a pleasant surprise if such values are noticeable in films made nearer home. Actually the technical supremacy of American cartoons no longer exists. The standard of animation reaching us from Eastern Europe has developed to a stage which not even the most daring exponent of this medium in the United States can attain.

Here are the names of some new directors who have come to the fore in the last few years.

POLAND

Jan Lenica and Walerian Borowczyk surprised the world by winning the cartoon prize in Venice in 1957 with their *Once upon a Time*. Since then they have also won the Grand Prix in Brussels in 1958, for experimental films, with *Dom*.

Their work is excitingly futuristic, and has deep satirical implications, from every point of view the most modern and daring to come out of any country, whether east or west.

It is worth noting the name of W. Nehrebecki, whose cartoon *The Mouse and the Cat* received the highest mark of any film at the Cork Film Festival this year.

YUGOSLAVIA

The Yugoslav achievement is even more surprising, considering that their cartoon studio only commenced a very few years ago. Today they employ over one hundred and twenty, with such leading directors as Dusan Vukotic *Concerto for Sub-machine Gun,* Vatroslav Mimica *At the Photographer's* and Nikola Kostelac *An All-round Help,* all first-class films.

In visual invention and graphic presentation the Yugoslav cartoon has now surpassed its American counterpart.

HUNGARY

The Hungarians, due to the isolation of their industry, were until recently not very advanced in technique and design. During a recent visit I was able to show the animators in Budapest examples of contemporary work, principally from the USA and Britain, which evidently acted as a stimulus because their style of work has now changed.

CZECHOSLOVAKIA

The puppet films of Jiri Trnka, for example *A Midsummer Night's Dream,* is well known in this country, but less known are the cartoons of Eduard Hofman *Creation of the World* and *My Twelve Fathers.* His approach is always imaginative and has a wonderful sense of humour.

FRANCE

Lately two considerable artists have emerged to the fore. The first is Henri Gruel, an experimentalist who adapts cartoon techniques to cut-out shapes and even to live photographed paintings, as in *La Jaconde,* a satire on Leonardo da Vinci's *Mona Lisa.*

The other is Berthold Munschler, who so far has only produced industrial films. His style is brilliantly colourful, his drawings beautifully simplified in the best French tradition.

ITALY

Bruno Bozzetto is only twenty-two, but his credits include such films as *The History of Arms* and *The History of Inventions.* Both these films are drawn in good basic European pictorial tradition, and they are witty and imaginative, foreshadowing an exciting future for Bozzetto.

RUSSIA

We notice in the last few years the incredible technical advancement and perfection of the Russian cartoons, and regret bitterly the conspicuous absence of up-to-date design and the lack of free imagination. In this respect the Russian cartoon is not unlike the average Hollywood animal cartoon product, but with a slower timing to suit the local audience.

At this moment the newsreel and the specialized cinemas are short of good, new animated films. There need not be a shortage, as European animation has developed to standards at least equal to those achieved by the United States in the theatrical field. The best of the Continental films are gradually being shown in local cinemas. It is high time that British cartoons received similar treatment.

MAKING THE MOST OF WHAT YOU'VE GOT

J. G. HALL
Esso Research Ltd

Synopsis of talk given at Engineering Group meeting, 30th November 1960

MOST information services start from small beginnings and the extent to which they may be allowed to expand depends largely on the impact which they make in their early stages. Such impact in turn depends upon making the maximum use of those limited resources which are inevitably associated with small beginnings—limited resources in the way of material, equipment, and staff—and the object of this present talk is to provide some indication of the manner in which such limited resources may be exploited to the greatest effect.

MAKING THE MOST OF AVAILABLE MATERIALS

Journals

It is desirable to be familiar with the scope and special features of the journals which are taken—abstract sections, current prices, data sheets, translations of foreign articles, patent and trade mark data, buyers' guide issues, special subject issues, year books issued as part of a journal subscription.

Note the value of the 'Books received' feature as providing data on material emanating from other than normal publishing channels, and on trade catalogues available, e.g. F. H. Smith's 'On the shelf' in *Engineering*; *Official Journal* (*Patents*). Journals may provide the text of papers presented before professional institutions before such texts are available in official publications. Journal indexes can be sources of information, fixing dates, etc. *The Times Index.*

Journal subscriptions give an entry to information services maintained by editorial offices—of special value for contacts, etc.

Check location of journals available within the organization but not deposited in the library. Consider possibility of making the library a repository for journals coming to technical staff on a personal membership basis. Wherever possible stipulate a free hand with material so deposited—it may be useful as basic material for exchange schemes.

Abstracts

Be aware of those journals to which you subscribe which include an extensive abstract section, e.g. *Journal of applied Chemistry, Journal of the Institute of Petroleum.* Consider the advantages of binding abstracts separately.

Check up on abstract services available without charge, e.g. *Ion Exchange Survey, Petroleum Refinery Developments, Copper Abstracts, Nickel Bulletin* and the earlier *Light Metals Review.*

Check up on the extent to which the abstract services to which you subscribe are in a position to provide copies of originals on which abstracts are based.

Abstract journals are expensive—the number you can take will be limited—hence desirability of knowing nearest locations at which others are available on a reference basis.

Society services

It is useful to maintain a listing of all company and personal memberships of learned and technical societies, research associations, etc., in order to ensure that library and information services associated therewith are utilized to full advantage.

There is a very marked variation in the period which elapses between presentation and publication in different societies, as also in the extent to which preprints of general and sectional (subject or geographical) meeting papers are available. Familiarity with the practices of relevant institutions in these respects can eliminate much fruitless labour.

Books

What has been said about journals with reference to scope and special features applies equally to books. Here familiarity with arrangement and such peculiarities as extensive appendices, unconventional arrangement and unexpected contents pays rich dividends.

Binding

Don't send material to bind until abstracts covering this have been out for some little time.

There is an advantage in retaining a second set in an unbound state for loan purposes.

USING COLLEAGUES (TECHNICAL MEN) TO THE FULL

As sources of information. (Personal files.)

As sources for contacts.

As sources for journals on personal subscriptions.

As means of obtaining preprints and proceedings of conferences attended.

As referees for the vetting of new books and journals.

USING LIBRARY TIME TO THE FULL

Check on loan requests—ask to see source.

Use own experience in evaluating requests.

Check on urgency—time factor governs procedure.

Value of own loan records.

Assessment of desirability of cataloguing and classifying, numbered sequences and trade catalogues.

Advisability/or otherwise of issuing own abstracts.

USING OUTSIDE RESOURCES

Familiarity with fields of specialization and limitations of outside contacts—remember limitations and facilities change.

Collect catalogues and lists of holdings.

Avoid asking for material outside scope.

Be prepared to reciprocate.

Spread the load.

In particular check location of expensive reference works and abstract services which are available for consultation.

Use of outside resources for examination and selection of items to be borrowed and for the provision of necessary details for routine borrowing.

Don't ask for loan of material obviously of a reference nature.

In asking to borrow material always provide fullest possible details, even if some of these may appear to be superfluous, e.g. in proceedings of a society give author and title of paper, as this may be available in some other journal; in particular, papers presented before the American Chemical Society may be available as abstracts, preprints or in any one of several journals.

MAKING THE MOST OF YOUR SUCCESSES

We nearly all encounter those occasions when by a fortunate combination of circumstances we are able to produce, out of the hat as it were, in a matter of minutes or even seconds material which would normally only be found after an extensive search. When this does come off it is well to warn your client of his good fortune, let him understand that he must not always expect the answer so quickly, otherwise you are only laying up disappointment for him and difficulties for yourself.

BRAINS TRUST ON SPECIAL LIBRARIANSHIP

Winter Meeting, London, 23rd November 1960

THE Winter Meeting held at Aslib on 23rd November took the form of a 'Brains Trust on Special Librarianship'. The members of the panel were:

Mr B. Agard Evans, *Chairman* (Ministry of Works Library),
Miss M. Gauntlett (Kodak Ltd),
Mr A. H. Holloway (Admiralty Centre for Scientific Information and Liaison),
Mr L. T. Oldaker (Tube Investments Ltd),
Mr Frank Smith (Royal Aeronautical Society),
Miss M. Surry (Westinghouse Brake and Signal Co. Ltd).

The Chairman said that evidence of wide interest in this meeting had been shown in the thirty-three questions submitted in advance. Unfortunately it would not be possible to tackle them all in the time available. The questions had, therefore, been grouped by subject and it was hoped that there would be time to deal with a representative question from each group. He pointed out that members of the panel would speak as individuals and their expressed opinions would not necessarily be those of the organizations of which they were members.

Question 1. *Has the panel any views on what proportion of skilled staff time should be given to building detailed indexes, etc., to be used by the readers themselves and what proportion to direct help to readers?*

Mr A. H. Holloway said that the answer to this question depended to a great extent on the nature of the indexes and the skill of the users, and whether the material to be indexed was already classified. A simple author index or the arrangement of classified material in numerical order would obviously require less time and less skill than the building of an originator index or the compilation of a subject index of unclassified material. An index built by skilled staff would be more useful to those skilled in retrieval than one compiled by unskilled staff.

Other factors to be considered were the amount of skilled time available and the difference in working speed between skilled and unskilled staff.

The Chairman said that it was important to remember that without an adequate index it took longer to answer users' questions.

Miss Gauntlett said that a lot would depend on the subject field of the library: whether or not it was adequately covered by existing indexes.

Mr Oldaker said that the time spent on indexes could also be time used for direct help to readers if the index was so designed that readers could use it themselves.

Mr Anthony Thompson, speaking from the floor, pointed out the wide difference in allocation of staff time in varying libraries. He mentioned an industrial library which employed three staff full-time on circulating periodicals and a much smaller proportion on indexing, whereas in the Science Museum library four full-time cataloguers were employed while readers' inquiries were dealt with by two other members of staff, one of whom also did cataloguing.

Question 2. *Has the panel any bright ideas or suggestions about the circulation of periodicals?*

Miss Surry said that few libraries could afford to buy sufficient copies of periodicals for circulation and file, and controlled circulation to one person at a time was therefore desirable in order to keep track of the copies. She was sorry that she had no 'bright ideas' on this subject; compromise was almost inevitable.

Mr Oldaker said that his library no longer circulated periodicals as a routine operation. Experience had shown that controlled circulation was unsatisfactory and uneconomic. It could lead to conditions in which three people were chasing periodicals round the research department and individuals were hounded for return of copies; a three-day limit had generally resulted in periodicals being removed before those concerned had seen them.

Miss Gauntlett pointed out that most periodicals were cheap to buy and extra copies would probably cost less than controlled circulation.

Mr Smith said that the decision to circulate or not would depend on the level of the journals taken, but in his opinion the only place for most periodicals was in the library. Individuals should consult them there or buy their own copies.

The Chairman referred to the difficulties of circulation to widely scattered units and said that six was the maximum number of persons that should be included on one circulation list; it was then necessary to buy more copies according to the multiples of six people served. It was desirable that copies of all current periodicals should be available for reference on a table in the library.

Mr A. E. Cornfield, speaking from the floor, said that if staff were available it was better to issue abstracts in bulletin form rather than to circulate periodicals. This method might be quite as expensive as buying extra copies but all members of staff should then be able to see the abstracts within a week of publication of the relative journal.

Question 3. *Has the Panel any views on how to improve the present position in which, for the most part, technical librarians are regarded as congenital nitwits by those whom they serve?*

Mr Smith said that it was up to the librarian to prove that he or she was not a congenital nitwit. This was a matter of the projection of personality and of library psychology. Library clients were often highly qualified in their own fields but that did not prevent them being abysmally ignorant on some other subjects. If a technologist were asked to catalogue literature the result would probably be confusion worse confused. But if the librarian was able to supply the client with a relevant item of incidental information outside his field the reaction was generally surprise, interest, and admiration of the librarian's ability.

Mr Holloway agreed with Mr Smith's remarks and said that some librarians were particularly clever at finding and producing information but no one noticed their services, whereas others less efficient often had a knack of presenting the information more effectively.

The Chairman said that he had noticed this disparaging attitude to librarians on occasion when he met former colleagues who apparently could not understand 'what had brought him to this [low] status'. However, it was the special librarians' job to serve the technologists and others. It was often possible to point out discrepancies in the experts' work, tactfully, by asking for an explanation which would show up errors.

Question 4. Does the Panel think that classification methods other than an alphabetical system are designed for the convenience of the librarian and not for that of the reader?

Miss Gauntlett said that the ideal was an alphabetical index *and* a good classification system. The numerical classification was needed for arrangement of books in the library. An adequate alphabetical catalogue alone required just as much preparation as a classification system and did not make retrieval any easier.

Mr Smith suggested that two indexes were superfluous and that an alphabetical system was the only one by which a reader could find what he wanted without the assistance of a librarian.

The Chairman said that Mr Smith's remarks presupposed an unstaffed library. In special libraries staff should always be available to help the users. It was unusual to expect the reader to find material for himself and in some libraries he was not allowed to try to do so. In research libraries, however, the number of readers was generally limited and they could be trained to use the indexes. The arrangement of an alphabetical index in book form giving sixty-four entries at a glance had proved useful.

Dr D. J. Campbell said that librarians and readers should not be considered as rival parties; the librarian was there to serve the readers.

Miss Surry said that the classification should be designed to suit the librarian as he or she had to keep track of scattered material, including pamphlets, periodicals, and items which were out on loan or in circulation.

Question 5. In the opinion of the Panel do female or male librarians stand a better chance of 'getting away with murder'? In asking for special favours, does a female voice stand a better chance on the telephone than a male?

Mr Smith said that this was all a question of reciprocity. He felt that women inquirers generally got the better of him on the telephone, but if he were the inquirer he had more confidence in the information given him by a man.

Miss Gauntlett suggested that lack of confidence in women might be created in the minds of inquirers because they were more often served by women assistants who were partly trained or inexperienced. The report of the Aslib *Survey of information/library units** showed that the majority of library assistants were female, but that among the heads of libraries or information departments the men were generally unqualified whereas the women were qualified professionals.

The Chairman said that he thought any lack of confidence in women librarians was probably a hangover from Victorian days. He had noticed that in America nearly all the librarians were women.

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* Published by Aslib, 1960. 12*s*. 6*d*. (10*s* to members)

Mr Holloway said he did not think the inquirer cared whether he dealt with men or women provided that he got the answers to his questions.

Question 6. Does the Panel agree that an inquirer rarely asks for what he really wants? What advice would they give to a young library assistant on this matter and does the Panel think that ideally the library assistant should be a specialist in the subject about which a reader is inquiring?

Mr Oldaker said he thought the inquirer generally knew what he wanted but seldom asked for it. This might be because he was unaware of the nature of the service available and phrased his question too broadly. He would advise a library assistant to imagine himself as the inquirer before tackling the question. It was generally possible to persuade senior staff to phrase their questions more precisely.

He thought that the principle of every library assistant being a specialist in the subject of inquiry was indeed ideal but impracticable, as the number of library staff was generally insufficient to carry specialists in all the subjects covered.

Miss Gauntlett said that she would advise a young library assistant first to find out how much the inquirer already knew about his inquiry.

The Chairman said that it was important to find out also in what aspect the inquirer was interested. Architects, buyers, and manufacturers each wanted different kinds of information. It was important also to give the inquirer the impression that the librarian understood the subject of the inquiry.

Miss Surry said that, on the other hand, a woman could often find out more details of the inquiry by feigning ignorance of its subject.

Mr Smith pointed out that it was not unusual for an inquirer to ask for a special report or document, giving full details, and then when presented with it to say 'Is this all you've got?'

Miss Dyke, from the floor, said that it was often helpful to show the inquirer the classification schedule covering his subject and ask him to point out the section of special interest.

Question 7. Does the Panel think that the various surveys that Aslib is now undertaking are really necessary?

The Chairman pointed out that the Aslib research programme had been outlined in a paper given by Mr Hanson, Head of the Research Department, at Aslib 35th Annual Conference in September.* He commented on the difficulties involved in drawing up a research programme where there was no recognised discipline, so that the basic knowledge on which to plan more fundamental research had first to be established. The investigation into the cost of loans was only a small item but it was an important one. Dr Campbell's survey of information library units in industrial organizations also was valuable. The beginning of Aslib research was sound.

Mr Holloway said it was necessary to define 'research' as applied to special librarianship. He thought the work done by Aslib constituted useful inquiries but *not* research any more than bird-watching was research.

Dr Campbell commented that many of the questions raised during the meeting might be answered as a result of research.

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* *Aslib Proc.*, vol. 12, no. 10, October 1960, pp 342–7.

Mrs Veasey, from the floor, said that Aslib had overlooked both 'bird-watching' and research already done. Mr Robert Volans had made an investigation into the cost of interlibrary lending* less than ten years ago which had produced a similar result to that of the Aslib project. Surveys similar to that carried out by Dr Campbell had already been done in different industries. Much of the Aslib work, therefore, seemed to represent unnecessary duplication, and she felt that it would be more useful for Aslib to break new ground.

The Chairman pointed out that the survey carried out by Mr Volans had dealt with public libraries, whereas Dr Campbell's survey was concerned only with special libraries, which held much smaller stocks and were often without mechanization for interlending. This was a different problem and might have produced widely different results.

The earlier research work was known to Aslib but had not been allowed to prejudice the result of the Aslib investigations.

Question 8. *What does the Panel consider should be the duties of the Aslib Education Officer, having regard to the present structure and proposed reorganization of the Library Association syllabus and the possible educational plans of the Institute of Information Scientists?*

Mr Smith questioned whether, in a co-operative movement such as Aslib, an education officer was necessary.

Miss Gauntlett said that Aslib had always been interested in the training of special librarians and had been running successful training courses at all levels. These courses had until now been arranged by the Meetings Organizer, but with the demand for them increasing it was obvious that one person could no longer carry this load in addition to that imposed by the many conferences and meetings on the Aslib programme.

The Chairman pointed out that one of Aslib's interests was clearly the need to keep a watch on the educational qualifications of special librarians, and that the advice of the Aslib Education Committee had in fact influenced the revision of the Library Association syllabus. It was now necessary to have someone on the staff to concentrate and specialize in this field.

Mr Cornfield, from the floor, said that the results of the courses run by Aslib in the past, together with increasing demand, had proved the future need for an Education Officer on the Aslib staff.

Question 9. a. *Does the Panel think that membership of the Library Association confers any particular benefits on those who work in special libraries?* b. *In the opinion of the Panel, should professional library qualifications take precedence over a university degree in applicants for special library posts or does the degree win hands down?*

Miss Surry said that Membership of the Library Association was important because it implied a knowledge of public and group libraries dealing with special subjects. The Library Association training courses were also of benefit, even for those who failed in examination, because they introduced aspects of the work which might not otherwise be encountered.

The value of a university degree would depend a lot on subject. A degree in science which implied subject knowledge relevant to the work of the library concerned would take precedence over library qualifications, but a non-scientific degree would not do so.

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* VOLANS, R. F. *Library co-operation in Great Britain: report of a survey of the National Central Library and Regional Library Bureaux...*, December 1951. National Central Library, 1952.

The Chairman said that the discipline of the Library Association courses was of great value. The achievement of library qualification and university degree were not necessarily opposed as all branches of knowledge were useful to special librarians.

Question 10. *Does the Panel think that librarians and documentalists use jargon because plain words are inadequate or because they are trying to inflate the importance of their profession?*

Mr Smith said that many librarians used jargon unnecessarily. Librarianship should aim at simplification of knowledge for the readers and stick to four-letter words.

The Chairman said that the jargon of librarianship among librarians was no more offensive than that of other sciences, but it should only be used to clarify meaning and should not be used in communication with those outside the library field who would not understand it.

Mr Anthony Thompson said there were two kinds of jargon. One, of which 'accession' was an example, was superfluous and obscure to those outside the library field; the other, which was useful and descriptive, could be exemplified by the term 'faceted' which, applied to classification, also helped to popularize a new concept.

FROM MONASTERY TO MANAGEMENT CENTRE

D.W.LANGRIDGE, B.A., A.L.A.
Information Services, Ashridge College

IT is nearly seven hundred years since a college was founded at Ashridge—the College of Bonhommes (a rare order of monks brought over from the south of France by Edmund Plantagenet).

At that time, of course, the monks were one of the chief instruments for the advancement of learning and in the days before printing the production of books was well served by their industry. Ashridge itself was responsible for some very fine manuscripts and although none remains in the library today there is a photocopy illustrating the work of Brother Simon. The original is now in the Huntington Library, California, and the great value placed on the possession of such works of learning may be judged from the note added to his copy by the scribe. A translation of the relevant part reads as follows:

> 'And if anyone shall remove this book let him be accursed, and may he be separated from the most holy Body of God and the Lord and Saviour Jesus Christ and in the Last Judgement may he receive the most extreme penalties.'

Times have changed, but there are contemporary equivalents of those rare manuscripts that need guarding and there will be many readers of this journal who will respond sympathetically to this cry which reaches us across seven centuries. Two other photocopies in the College library are of original works written rather later by a distinguished monk of the order of Bonhommes, Paul Bush. One of them is the *Lytel Treatise in Englyshe called the Extirpacion of Ignorancy.*

As a monastery for two and a half centuries Ashridge represented an important section of English life in the Middle Ages. When Henry VIII asserted the secular power against the religious, Ashridge too changed from a monastery to a royal residence. In the slow-changing aristocratic society of the next three centuries Ashridge was the home of the Earls and Dukes of Bridgewater and, at the end of the period, of Earl Brownlow. The levelling-out process of the twentieth century was reflected at Ashridge when Earl Brownlow died. The majority of the estate was bought by the National Trust and the house itself, with three hundred acres of land, was founded as a citizenship college, open to the whole nation.

During the thirties the subjects studied at Ashridge were largely political, again reflecting the primary direction taken by the country's striving during the period. After the Second World War the curriculum became steadily wider, while the country made a serious attempt to realize the system of widespread education which our democratic ideology demanded.

If the thirties were characterized by political action, the key to the present is our economic affairs. It is generally recognized that the success of our industries depends on the effectiveness of their management, and it is in keeping with the representative role that Ashridge has always played in the life of the country that it is now established as a centre for management education. To look at the development in another way, the physical sciences have for long been the main point of development in man's conquest of his environment. It is now the turn of the social sciences, and management is the activity *par excellence* which takes something from all of them. It may also be described as an integrative study, which again reflects a new tendency after the long development of specialization from the beginning of the scientific era.

The main effort of the College in its present role is directed towards middle management. Six four-week courses each year are devoted to the further development of experienced managers who are likely to reach senior positions in their companies. In addition the College runs a number of special one-week courses. These may be devoted to a particular group of managers, such as the course for new entrants to industry; they may be on special subjects, such as those providing financial knowledge for non-accountants; or they may be aimed at a particular type of company, such as the unique course for senior managers of the smaller enterprises.

The spacious rooms and grounds of Ashridge are obviously not occupied fifty-two weeks of the year by its own courses. In the vacant periods the College makes a further contribution to the country's training programme by offering its facilities to bodies such as Aslib, BACIE, BIM, and private companies, to hold their own courses and conferences. The staff are actively concerned in developing their own studies in appropriate fields. The whole College is effectively supported by a first-class administrative and domestic organization.

Letters to the Editor

TRANSLATORS' PROBLEMS

Dear Madam,

The estimation of the number of words in a translation is one problem; a more difficult one is the calculation of fees for tables and tabulated matter.

The method I use is to estimate as accurately as possible the number of words that would be found in an equivalent number of pages of text. The translator is thus paid at a high rate on the basis of the words he actually translates, but is compensated for his higher typing costs and for the extra time he must spend in checking.

Yours faithfully,
C. I. Pedersen,

The Iron and Steel Institute,
4 Grosvenor Gardens,
London, SW1.

3rd January 1961.

Madam,

As a practitioner of some experience in the field of translating Japanese scientific and technical papers I have long since come to the conclusion that the only fair and logical method of charging is that based on the number of Japanese characters, whether they are *kanji* (the full and originally Chinese characters) or *kana* (the abbreviated characters, called 'phonetic symbols' by your correspondents).

Where a text is overloaded with *kana,* a suitable adjustment can be made in the charge quoted. This often applies to chemical papers, e.g. it takes seven *kana* to render *shikuropentan,* 'cyclopentane', or *kapuroraktumu,* 'caprolactam'. But it is simple enough to count, say, three *kana* as the equivalent for charging purposes of one *kanji,* so that I cannot see that there is any real need for the statistical approach suggested.

On a point of detail, the Japanese term for 'electronics' is represented by four (not three) characters: *denshi-kogaku* (i.e. 'electron-science'). In compounds, however, 'electronic' is usually represented by the first two characters only, e.g. *denshi-hado,* 'electronic wave', and *denshi-denryu,* 'electronic current'.

Finally, it is worth pointing out that the tracking down of Japanese characters, while laborious enough, is not even half the story. The major difficulty is to extract a coherent meaning from a set of characters once their individual meanings have been found, and this is what, ultimately, the translator is being paid for: solving what often proves to be a linguistic jigsaw puzzle. May this be some crumb of consolation to those who are appalled at the high charges for translation from Japanese!

F. E. Wallwork,

Vine Cottage, Wolverton,
Basingstoke, Hants.

3rd January 1961.

SELECTIONS FROM THE RECENT LITERATURE

ALL ITEMS listed may be borrowed from the Aslib Library, except those marked *, which may be consulted in the Library.

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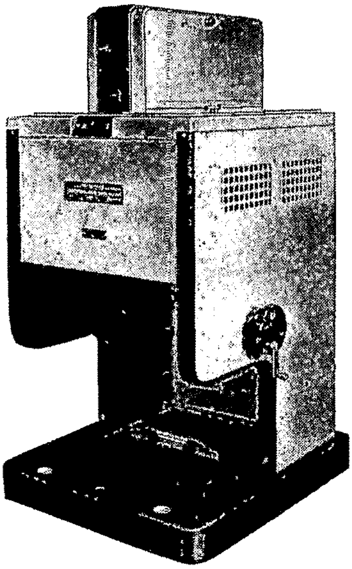

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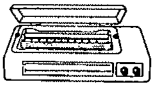

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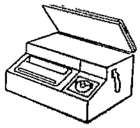

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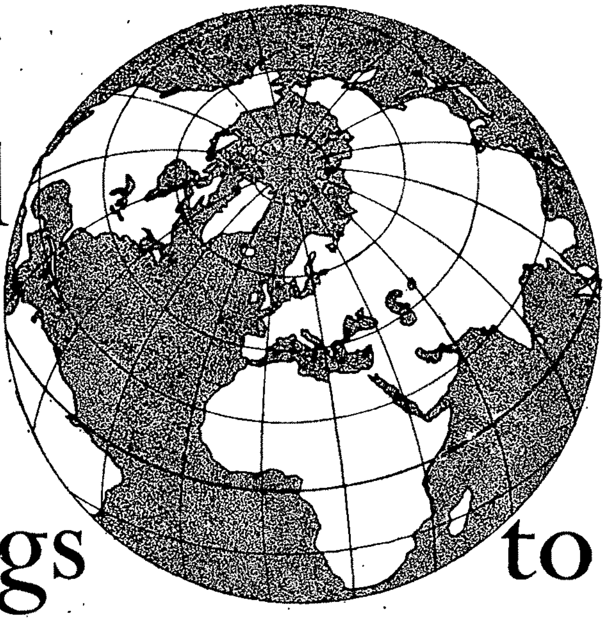

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ASLIB PROCEEDINGS

incorporating Aslib Information

Volume 13 March 1961 Number 3

ASLIB CALENDAR

March

THUR.23. Fuel and Power Group annual general meeting at Aslib.

TUE.28. Course on compilation and production of information department publications.

WED.29. Midlands Branch annual general meeting in Birmingham.

April

WED.5. Film Production Librarians' Group meeting at Shell-Mex House.

WED.19. Engineering Group visit to American Library.

THUR.20 – SAT.22. Northern Branch conference at Durham.

FRI.21 – SUN.23. Electronics Group annual conference at Ashridge College.

TUE.25. Winter meeting.

May

THUR.4. Third conference on business records.

July

THUR.13 – SUN.16. Aeronautical Group annual conference at Cranfield.

FRI.21 – MON.24. Northern and Midlands Branches conference at the University College of North Staffordshire.

September

WED.6 – SAT.16. FID conference in London.

FID Conference

The dates for the conference of the International Federation for Documentation to be held in London in September 1961 have now been settled finally. They differ slightly from those already notified to members of Aslib, who are now requested to note that the first public session will take place at 2.30 p.m. on Tuesday 12th September. The last public session will take place during the afternoon of Friday 15th September and it is hoped to arrange a conference dinner on the evening of the same day. Aslib members who are making early reservations of accommodation in London for the conference should make a special note of this timetable.

Third Conference on Business Records

After the February issue of *Aslib Proceedings* went to press it was found necessary to change the date for this conference. It will be held in the Connaught Rooms, Great Queen Street, London WC2, on THURSDAY 4th MAY, *not,* as previously stated, on 11th May. The special subject of this conference will be effective control of correspondence and related papers.

Northern and Midlands Branches Conference

A provisional programme has now been issued for the joint Northern and Midlands Branches conference to be held from Friday 21st to Monday 24th July at the University College of North Staffordshire. There will be an introductory talk on the history and aims of the University College of North Staffordshire, a paper on the library of the college to be given by the librarian, Mr S. O. Stewart, and papers on educational needs in special library work, a syllabus for a course on collection and communication of scientific information, information work in a technology and, possibly rather rashly, 'How a librarian spends his time'. Other items include an excursion to Lichfield to visit the cathedral library and Dr Johnson's house, and visits to the British Ceramic Research Association and to one of the well-known potteries. The total cost per delegate is expected to be about £5.

Northern Branch

A two-day conference will be held at St Mary's College, University of Durham, from Thursday 20th to Saturday 22nd April. This will incorporate the Annual General Meeting, which will take place on Friday 21st. The provisional programme covers papers on 'Work study of library charging systems', 'The function of the library in research projects', 'The new university library in Newcastle upon Tyne', and 'The Thorp Arch project'. The conference fees will be 30*s* per day, plus 10 per cent service, and a registration fee of 7*s* 6*d* for both resident and non-resident members. Programmes and full details will be available later.

Scottish Branch

At the Annual General Meeting on 3rd February, the Branch accepted, with regret, the resignation of the Hon. Secretary, Miss N. I. Shinie, who is leaving shortly for Nigeria. Miss Shinie has carried out the unenviable duties of her office since 1958, and takes the good wishes of members with her. Mr. H. Greenshields, UKAEA, Dounreay Experimental Reactor Establishment, Thurso, Caithness, Scotland, was elected Hon. Secretary for 1961–2 and Mr R. Beer, British Hydrocarbon Chemicals, and Mr A. Brown, St Andrews House Library, Edinburgh, were elected and welcomed to the committee.

After an introduction by Mr F.D. Penney, Deputy Director of the National Engineering Laboratory, on whose premises the meeting was held, the programme comprised a Brains Trust during which the panel, consisting of the Director, Miss Bremner, Mr Goldstone, and Mr Hanson, submitted to a barrage of questions ranging from an appeal for an Aslib annual conference to be held in Scotland, to the Copyright Act and Patent Office classification. Mr W. H. P. Leslie of the National Engineering Laboratory then gave an interesting talk on 'information retrieval by automation' which was illustrated, in the afternoon, by a visit to 'Deuce'—the computing machine in the Heat Division of the Laboratory. A visit was paid also to the new library in the James Wall building, which is one of the two libraries in Scotland to be furnished with the Compactus-Ingold system of mobile shelving.

Aeronautical Group

Seventy-four people attended the winter meeting held on 9th February in the new lecture theatre of the Royal Aeronautical Society. An interesting colour film dealing with the 'Black Knight' missile and produced by the Royal Aircraft Establishment Documentary Film Unit was shown. Captain I. R. Maxwell, Chairman and Managing Director, Pergamon Press, spoke on 'the dissemination of scientific and technical information' (not on problems concerning the publication of scientific journals and books as previously announced) and a lively discussion followed. It is hoped to publish Captain Maxwell's paper in a subsequent issue of *Aslib Proceedings*.

At the Annual General Meeting, the Group committee for 1961–2 was elected as follows: C. W. Cleverdon, Chairman; Miss M. Dyke, Hon. Secretary; J. S. Rosser, Hon. Treasurer; Miss E. H. Ridler, T. M. Aitchison, G. E. B. Percy, K. J. Spencer, R. A. Wall, R. C. Wright.

Chemical Group

Members who would be interested in a group visit to the library of the Chemical Society are asked to write to the Hon. Secretary, Mrs K. M. Bonneywell, John Wyeth & Brothers Limited, Clifton House, Euston Road, London NW1.

Engineering Group

On 9th February six members visited the printing works of Unwin Brothers Limited, at Woking. They were shown the processes of hand and machine composition, flat-bed and offset-litho printing, and cutting and binding of paper-backs and limp-covered volumes. They admired also the richly coloured mural in blues, reds, and greens, painted by Terence Emery and depicting an imaginary ceremony of presentation of one of the first printed Bibles by the printer to the Church. This mural is nearly 60 ft long and 8 ft high. A visit to the American Library, Grosvenor Square, has been arranged for 5 p.m. on Wednesday 19th April. Those wishing to attend are asked to notify the Group Secretary, Miss M. Surry, Westinghouse Brake & Signal Co. Ltd, 82 York Way, Kings Cross, London N1, as early as possible.

Fuel and Power Group

At a committee meeting held on 2nd February, Miss G. E. Hargreaves, Information Division, British Engineers' Association, 32 Victoria Street, London SW1, was elected Hon. Secretary in place of Miss Norman, whose resignation had been accepted reluctantly.

EPA Seminar on the Use of Technical Information

The European Productivity Agency is holding a seminar on technical information for small organizations from 27th to 30th March, at Varese, Italy. The basic purpose of the meeting is to explore and try out means of showing the top and middle management of small firms how better use can be made of existing information. The lecturers will include three from the United Kingdom: Mr E. Martindale of DSIR, Mr C. W. Hanson of Aslib, and Mr J. Farradane of Tate & Lyle.

E. J. Carter

Mr Edward Julian Carter, B.A., A.R.I.B.A., a former student of the Architectural Association School of Architecture, has been appointed Director of the Architectural Association. Mr Carter has been closely concerned with Aslib activities for many years. He became a member of Council in 1932, when he was Librarian of the Royal Institute of British Architects, and continued to serve as an Elected Member until he became Honorary Secretary, which post he held from 1936 to 1939. From 1942 to 1944 he was Chairman of Council and continued as a member of Council until he left the RIBA to take up the appointment of Counsellor for Museums and Libraries to Unesco. Later he became Head of the Libraries Division of Unesco in Paris. Since his return to this country in 1957 Mr Carter has again served on the Council of Aslib and on the International Relations Committee of which he is Deputy Chairman.

Edward B. Smith

News has been received with deep regret of the sudden death of Mr Edward B. Smith, Librarian, Safety in Mines Research Establishment, Sheffield and Buxton. Mr Smith was forty-four years old. He started his career in the Liverpool Public Libraries and later joined the staff of the War Office library in London. He took up his appointment in Sheffield in 1951 and has been concerned with organization and maintenance of one of the country's most highly specialized libraries. He was active also in the co-ordination of library facilities in the Sheffield area.

British Standard Glossary of Coal Terms

The British Standards Institution has announced publication of BS.3323:1960, *British Standard glossary of coal terms*. The new standard defines terms used in the petrography, classification, analysis, marketing, and utilization of coal in the United Kingdom. These terms are in many instances to the National Coal Board's classification system for coal, which is set out in an appendix. Another appendix lists the sizes of commercial grades of coal. Coal sampling terms are not given, as these are covered by BS.1017. Terms used mainly in coal preparations are also omitted because a comprehensive British Standard glossary on this subject will shortly be published separately. Various terms have been excluded from the glossary because they are purely local descriptions, their meaning is self-evident, or they merely indicate the geographical origin or method of extraction of a coal.

Copies of BS.3323 : 1960 may be obtained from the British Standards Institution, Sales Branch, 2 Park Street, London W1, price 5*s*. Postage extra to non-subscribers.

LLU Translations Bulletin

The Lending Library Unit of the Department of Scientific and Industrial Research will this year become the National Lending Library Unit for Science and Technology. The *LLU Translations Bulletin* has, therefore, been renamed *NLL Translations Bulletin,* commencing with volume 3, no. 3, January 1961.

Moscow Academies and Research Institutes

The March issue of *NLL Translations Bulletin,* prepared by DSIR, Lending Library Unit, contains a forty-page list of academies and research institutes in and near Moscow. The list comprises nearly 300 entries, each giving name of establishment, official abbreviation, translated name, address, and telephone number. It is hoped to publish further lists to include planning and design institutes, higher educational organizations, and laboratories in the Moscow area, and libraries of the Academy of Sciences of the USSR library systems.

NLL Translations Bulletin is available from HMSO, P.O. Box 569, London SE1; British Information Services, 45 Rockefeller Plaza, New York 20, NY, USA; or through any bookseller. Price 2*s* 5*d*, post free, or at an annual subscription of 53*s* ($7.50 approximately).

Atomic Energy Reports on Microcard

Micro Methods Limited announce that, by permission of the United Kingdom Atomic Energy Authority, unclassified reports from the Atomic Energy Research Establishment, the Atomic Weapons Research Establishment, and the Industrial Group of the United Kingdom Atomic Energy Authority, published from 1946 to 1956, are now available on microcard from Micro Methods Limited, East Ardsley, Wakefield, Yorkshire. Many titles are available also on microfiche. Complete lists will be sent on request.

Technological Education Conference

The Regional Advisory Council for Technological Education, London and Home Counties, will hold its annual conference this year from 16th to 21st October in France, with Paris as the residential base. It is hoped that delegates will be able to visit a number of training and industrial establishments, laboratories associated with the University, and a provincial technical training centre within reasonable travelling distance of Paris. The total cost is likely to be about £25 for each delegate, including accommodation, meals, and transport. Further details may be obtained from the Secretary, R. D. Jamieson, Regional

Advisory Council for Technological Education, London and Home Counties, Tavistock House, South Tavistock Square, London WC1.

Summer School of Librarianship

The Scottish Library Association's Summer School of Librarianship will be held from 1st to 7th July at Newbattle Abbey College, near Dalkeith. Lecture subjects include: education for librarianship, modern trends in classification, the library at Dounreay Experimental Reactor Establishment, the role of the library committee, bibliographical apparatus, some problems of publishing. The fee for the course is £7. Syllabus and further particulars are available from J. W. Cockburn, F.L.A., Hon. Secretary, SLA Summer School, Central Public Library, George IV Bridge, Edinburgh.

Institute of Linguists

The Institute of Linguists has recently adopted a corporate membership scheme whereby commercial and industrial organizations may, for an annual subscription of 10–30 guineas, according to size, benefit from the services offered by the Institute. The subscription for non-profit-making organizations is 5 guineas. The services offered by the Institute include introduction to translators and interpreters for special assignments both at home and abroad, use of the Institute's specialist reference library, and representation at the Institute's meetings and conferences. Further details and application forms may be obtained from the Secretary, Institute of Linguists, 3 Craven Hill, London W2.

International Congress Calendar

The 1961 edition of the *Annual International Congress Calendar* has been received. This is a chronological list of international congresses, conferences, meetings, symposia scheduled to take place in 1961 and subsequent years, in so far as arrangements have already been announced. Date, place, address of organizing body, theme, estimated number of participants and plans for publishing reports or proceedings are indicated; subject and geographical indexes. Note of any exhibition to be held in association with the meeting is given. It contains entries for 849 meetings scheduled for 1961 and a further 471 for definite and indefinite dates and places during the years 1962–6. The calendar is published by the Union of International Associations, Palais d'Egmont, Brussels 1, Belgium, and is available in the United Kingdom from Mr E. S. Tew, 91 Lyndhurst Gardens, Finchley, London N3, price 18*s*.

Transatom Bulletin

Transatom is the name of the information office which has been set up at the headquarters of the European Atomic Energy Community (Euratom) in Brussels. Its purpose is the collection and dissemination of information on translations in the field of nuclear science. The United Kingdom Atomic Energy Authority and the United States Atomic Energy Commission are co-operating in this project. Transatom is building up a master-card file of all data relating to translations of interest, with particular reference to translations from languages unfamiliar to most western readers. Information on existing and planned translations will be published in the English language in a monthly journal entitled *Transatom Bulletin,* of which the first issue, dated December 1960, has been received. The journal contains two main sections: 'existing translations' and 'planned translations' followed by a list of journals translated from cover to cover, author index, and original source index. Entries are listed under subject in alphabetical sequence of author, with titles entered in English and, in most cases, in the original language. Symbols are added to indicate the authorities from whom existing translations can be requested.

Transatom Bulletin is available from Euratom, Transatom Service, 51 rue Belliard, Brussels, Belgium, at an annual subscription of 400 Belgian francs ($8 or 57*s* 6*d* approx.) inclusive of surface mail, or 800 Belgian francs ($16 or 115*s* approx.) by air mail.

International Directory of Teachers' Associations

Unesco expects to publish, in April 1961, an *International directory of teachers' associations,* the first of a series of international directories of education. The new directory is based on replies to a questionnaire distributed, during the latter half of 1959, to various associations throughout the world. It contains reports on 1,274 organizations in 126 countries and territories, printed in English, French, and Spanish. The price will be approximately 17*s* 6*d*, $3.50, 11.50 NF bound, or 12*s* 6*d*, $2.50, 8.75 NF in paper covers.

Unesco Courier

The *Unesco Courier* is to be published regularly in Arabic and Japanese, commencing early in 1961. The *Courier* is already published in English, French, German, Russian, and Spanish. Subscriptions can now be accepted for the Arabic edition. Subscriptions for the Japanese edition will be accepted on and after 1st April. Further details may be obtained from Unesco, Documents and Publications Service, Place de Fontenoy, Paris 7e.

Vacations Abroad

Unesco has announced publication of the thirteenth edition of *Vacations abroad.* This volume gives details of more than 1,500 educational and cultural vacation activities open to students, teachers, and workers. Information is given on vacation courses and study tours, holiday camps and centres, hostels, and financial assistance available for vacation study or training. *Vacations abroad,* volume 13, is published in English, French, and Spanish, price approximately 6*s*, $1.25, 4.50 NF. Unesco publications are available in the United Kingdom from the Ministry of Education, Curzon Street, London W1.

Development of the UDC

The International Federation for Documentation (FID) has issued the following revised (third) list of work undertaken in the development of the UDC but not yet published in 'P-Notes'. Further details of the studies listed are available from the General Secretariat of FID, 7 Hofweg, The Hague, Netherlands.

UDC	*subject*	*proposer*	*draft to CCC*
(14)	Place geographically	Germany	1960
(47 + 57)	USSR	USSR	1960
(6)	Africa	England	1960
(81)	Brazil	Brazil	
003.3	Kinds of script	France	
003.36	Stenography	Germany	1960
159.9	Psychology	Netherlands	1960
297	Islam	Indonesia	
3–05	Persons	France	
32	Political science	FID/C 3	
332	Cheques and savings	Netherlands	1960
347.81	Air Law	Germany	
35.08	Personnel matters	FID/C 35	
361/362	Social welfare	FID/C 36	
368	Insurance	FID/C 36	
37	Education	Netherlands	
4 and 8	Philology	France	
533.9	Plasmaphysics	England	
57	Biology	England	
61	Medicine	FID/C 61	
615	Pharmacy	FID/C 61/SC 615 and Netherlands	
62	Technique in general	FID/C 621.3	
621–4	Form	Germany	
621.039.6	Fusion reactors	England	
621.316.5	Electric switches	FID/C 621.3	
621.352/.353	Primary cells	FID/C 621.3	
621.377	Delay devices and electric memories	FID/C 621.3	
621.384.6	Particle accelerators	England	
621.7/.9	Workshop practice	England	1958
621.86/.87	Materials handling	Germany	1958
623.49	Rockets and missiles	Netherlands	1960
625.7/.8	Highways. Aerialways	England	1958
628.1	Water purification	England	
629.19	Astronautics	England	
637.11	Dairying	Netherlands	1957
65	Management	France	
66.0	Chemical processes	FID/C 54 + 66	
66.04	Heat treatment	Union Int. Electr.	1960

UDC	*subject*	*proposer*	*draft to CCC*
665	Petroleum	Netherlands	
666.3/.7	Ceramics	Finland	1958
667.6/.8	Paints and varnishes	Germany	
677	Textile industries	FID/C 677	
681.11	Clocks	Switzerland	
681.3	Computers	England	
681.4	Optical instruments	England	
72	Architecture	England	
796	Sport	Belgium + Germany	

The General Secretariat would appreciate receipt of information on studies not reported above.

International Study of Linguistic Problems

The International Federation for Documentation has announced the establishment of an international study committee for linguistic problems. The scope of the committee is stated provisionally as follows:

1. To promote the use of two languages:
   a in primary publications, by urging the world of scientists to use one or two of the existing main languages as the languages of learning throughout the world;
   b in secondary publications, by encouraging publication of authors' synopses and abstracts in English and Russian if the original publication is in either of these languages, and in one or both of these languages if the original publication is in another language;
   c by advocating a more widespread and better teaching of these languages;
2. To promote the creation of national and international translation pools and clearing houses;
3. To encourage the establishment of monolingual and interlingual explanatory glossaries, to co-ordinate such work where possible, to collect information where such work is going on and disseminate or promote the dissemination of information on such work;
4. To seek close co-operation with the International Standardization Organization (ISO), International Electrotechnical Committee (IEC) and other international bodies active in this field.

A programme of work has been drawn up under the following headings:

1. Fixation of the meaning of concepts used in the UDC and acceptance of acknowledged terms in the different languages for such concepts to be used in UDC editions;
2. A critical survey of the identity of meaning of terms not occurring in the present UDC editions;
3. Creation of a central register for scientific and technical terms at the Secretariat of FID;

4. Obtaining information on new terms directly after appearance and dissemination of the corresponding terms to the editor of the UDC;
5. Establishment of a terminology in the field of documentation;
6. Study of developments in mechanical translation of full texts, of abstracts worded in key languages, and of keywords used in 'standardized' classifications;
7. Study of developments in automatic abstracting.

A report on items 2, 3, and 4, of the programme will be prepared for presentation at the FID conference in September (*see* Calendar).

The Secretariat of the study committee on linguistic problems is located at the Nederlands Instituut voor Documentatie en Registratuur, Riouwstraat 151, The Hague, Netherlands.

International Course for Documentalists

An international course on documentation will be held in Paris for three weeks during May 1961. The course will be organized by the Institut National des Techniques de la Documentation (INTD) and will comprise a series of lectures, followed by discussion, and visits to libraries and documentation organizations. The number of students is limited to thirty. The course is free but a charge of 20 NF will be made for accommodation and meals, which will be provided at the Centre International d'Etudes Pédagogiques. Candidates, who must be able to follow lectures given in the French language, should apply to INTD, Conservatoire National des Arts et Métiers, 292 rue Saint-Martie, Paris 3e.

Conference on Library Profession

'Seven questions about the profession of librarianship' is the title quoted for the twenty-sixth annual conference of the Graduate Library School, University of Chicago, to be held at the University from 21st to 23rd June. The seven questions, in order of presentation, will be: *i,* how the profession emerges; *ii,* how the idea of a library profession has developed; *iii,* how professional education fits into the general American pattern of education; *iv,* how different ports (*sic*) of entry affect the nature of librarianship; *v,* how librarianship has accommodated specialization; *vi,* how librarians seek to acquire professional status; and *vii,* how library associations in America have fulfilled the function of the professional association. Further information and copies of the conference programme are available from Mr Howard Winger, or Mr Philip Ennis, Graduate Library School, University of Chicago, Chicago 37, Illinois, USA.

Research into Library Methods

The Ford Foundation has announced a grant of $8m. to the Council on Library Resources, Washington, for research into library methods, with particular reference to storage and retrieval of information. Part of this grant will be used for setting up a laboratory to study photographic and electronic techniques designed to cope with the increasing volume of publications resulting from the accelerated rate of research.

ABSTRACTING JOURNALS IN THE ELECTRONICS FIELD

C. K. MOORE
Royal Radar Establishment

Electronics Group Meeting, 30th November 1960

INTRODUCTION

THE assessment of abstracting journals seems to be a subject which has fallen into some neglect in the literature of documentation in this country. This is probably because our thoughts have been turned to higher things. The word mechanization has been in the air with the result that we have heard all about machine retrieval, cards—edge-punched and punched all over, magnetized cards, automatic sorting, peek-a-boo systems, co-ordinate indexing, descriptors, etc. etc.

Generally these ideas have remained in the air and librarians have been getting along with more pedestrian devices. Pedestrian though it may be, the abstract journal remains one of the fundamental tools of the librarian, and now that, in the electronic field at any rate, certain winds of change are blowing it is perhaps opportune to survey the position.

The penetration of electronic techniques into so many fields, ranging from the automation of luggage trucks on Wolverhampton station to the instrumentation of a space vehicle, has resulted in the literature of the subject being spread over a diversity of publications. This diversity presents corresponding problems to those engaged on the indexing and abstracting of the literature.

In speaking of the field covered by electronics it is perhaps as well to recall the definition 'as the study of the phenomena of the condition of electricity in a vacuum, in a gas, and in semiconductors, and with the use of devices based on these phenomena'. Or otherwise in the words of Professor Terman 'electrical engineering is generally the use of electrical power in a small frequency band at 50 c/s or 60 c/s whilst electronics covers a vast range from d.c. to submillimetre waves'.

Considering *Science Abstracts* from this point of view we find that not only is by far the greater part of *Science Abstracts* Part B concerned with electronics but also much of Part A, in particular the sections on semiconductors and gaseous electronics.

A variety of terms are in use for describing abstracts; in descending order of magnitude these seem to be: digests, fully informative, highly informative, informative, semi-informative, indicative abstracts, and annotations.

Someone has described a fully informative abstract as one which gives in full the results achieved, which means presumably that a semi-informative abstract gives only half the results reported.

Not content with this assembly of adjectives another publisher has described his abstracts as midway between the informative and the indicative. For the purpose of this talk I am avoiding such terms altogether, I have contented myself with the crude business of counting the number of words. The comparative figures for a number of abstracting journals are given in the appendix.

JOURNALS PROVIDING COMPREHENSIVE COVERAGE

Turning to the journals themselves (only English language abstracting services will be considered), and dealing first with those which attempt to cover the whole of the field, the foremost of these, of course, is *Science Abstracts*.

This commenced publication in 1898 with 1,400 abstracts having an average of 220 words per abstract. In 1942 the UDC system was first used for the arrangement of the entries. By 1949 there were 11,600 abstracts and in 1959 the numbers had risen to 21,700 with 120 words to the abstract.

(The growth of electronic literature over the period is a matter for speculation; the Institute of Radio Engineers has published figures showing that the Institute published almost ten times as many papers in 1959 as in 1945.) On the basis of those figures one would have expected *Science Abstracts* to have expanded much more than in fact has been the case.

Annual author and subject indexes are, of course, published—and since 1956 there has been a monthly author index. It has become customary to criticize the subject index; in fact the latest index, that for 1959, does show improvement over those of previous years in that the titles under the main headings are now at least in alphabetical order.

The achievement of a completely satisfactory index is not an easy task, but adequacy in indexing is surely as important as the attainment of a high standard of abstracting. Of the excellence of *Science Abstracts* in this latter respect there can be no doubt.

An example of some lack of thoroughness in indexing is the manner in which two papers on mine hoists are dealt with in the 1959 index.

Of the two papers

a. Recent improvements in electric winders for mines

and

b. Trends in automatic hoist controls

paper *b* is indexed under 'automatic controls', under 'mining' and under 'winders' whilst paper *a* is indexed, as far as I can see, only under 'mining'.

The principal omissions among the matter abstracted are references to books, proceedings of a considerable number of conferences, papers from '*Advances in . . .*' series of books, United States PB reports, and patents.

On the question of format and layout *Science Abstracts* do score heavily, they are generally much pleasanter and easier to read than other journals of similar bulk.

At an annual cost of £10 for both parts A and B, they are, of course, remarkably good value for money. One wonders whether, in fact, the sights have been kept too low. Compared with the prices now being paid for other abstracting services, it would seem reasonable to expect that an improved and enlarged *Science Abstracts* could command a price five or six times the present charge.

In fact, unless some considerable expansion does take place one fears that they may not maintain their present authority.

Engineering Index

Next in order of bulk of entries of electronics interest is *Engineering Index*. This is issued as a bound volume (apart from issues of sets of subject cards) and it provides 30,000 abstracts per year with an average of fifty words per abstract.

In electronics the subject coverage corresponds to that of *Science Abstracts* B and in general contains abstracts of the same papers for which entries are given in *Science Abstracts*. There is also a sprinkling of entries on what are generally regarded as physics subjects—e.g. under Magnetism there are six entries in the 1959 volume. Where differences exist these are mainly foreign language papers —*Engineering Index* contains some which *Science Abstracts* omits and vice versa. *Engineering Index* provides a better coverage of proceedings of conferences (including the National Electronics Conference), but these are usually blanket entries and titles and authors only are given. On the other hand letters to *Proc. I.R.E.*, which are included in *Science Abstracts*, are omitted. Other omissions are papers published in *B.B.C. Monographs, Indian Journal of Physics, J. Phys. & Radium, Philips Telecommunication Review*. There are also very few books mentioned, no patents, and no PB reports.

To buy the bound volumes entails of course the obvious delay. The entries are arranged in alphabetical order in a manner such as:

a. Main heading	e.g. Musical instruments
b. Sub-headings	e.g. Electronics
c. In order of first word of title	

Such immaterial words as analysis, study, design, new, and calibration are allowed to govern the final order of the entries; with the result that many entries are effectively hidden.

The same criticisms as regards indexing which have been mentioned in relation to *Science Abstracts* apply with even greater force to *Engineering Index*. Oddities in indexing make searching difficult—one finds, for example, that a paper on artificial dielectrics was indexed only under 'dielectrics' and another on the same subject only under 'radar materials'.

Abstracts and References—DSIR compilation published in Electronic Technology

Equally well known are *Wireless Engineer Abstracts*—though this is no longer the name they go under. In fact they are *Abstracts and References* compiled by the Radio Research Organization of DSIR and they are published both in *Electronic Technology* and the *Proceedings of the Institute of Radio Engineers*; they appear a month later in the *Proceedings* than they do in *Electronic Technology*. They are also available separately.

The abstracts began in 1926 but were not numbered until 1935 when there were 4,140 abstracts per year (many were titles only); by 1959 there were 4,250 entries with thirty words per abstract.

Thus it appears that the total number of abstracts published has remained fairly constant since the nineteen-thirties, though, as the literature has increased so much since those days, the percentage of papers covered must have considerably decreased.

Though many papers are abstracted both in *Science Abstracts* and in *Electronic Technology* abstracts it is not completely the case that the same four thousand papers abstracted in the latter are covered by the twenty-two thousand abstracts in *Science Abstracts,* Parts A and B. There is, for example, a strong bias in the *Electronic Technology* abstracts on the subjects of propagation and ionospheric studies, and certain of the papers abstracted are not covered by *Science Abstracts.* On the other hand there are twice as many items on amplifiers in *Science Abstracts* as in *Electronic Technology* abstracts. Again the service provided would be enhanced by the publication of a more adequate annual index.

Electronics Abstracts

The only issue of this I have seen is the volume for 1956, which is the first annual publication. This issue contains 5,846 abstracts covering the years 1954 and 1955. The entries are arranged under eleven main headings: basic science, materials, circuits and circuit elements, application, etc. Only periodical articles are covered, there are no cross references, and there are neither author nor subject indexes.

US Government Research Reports

This is a monthly publication giving abstracts of US Government research reports (PB reports). It contains about two thousand entries each year (100-word abstracts) on electronics subjects arranged under the headings: electrical and electronic engineering, electronics, solid-state physics, and wave propagation.

There is an excellent comprehensive semi-annual index, but this at present is being issued about one year after the conclusion of each half-yearly volume to which it relates.

INDEXING JOURNALS

Whilst services which index only are generally less valuable than abstracting journals, they have an advantage that they can provide the information more quickly.

An old-established publication in this category is the *Applied Science and Technology Index.* Titles only are given and these are confined to English language publications, but otherwise it has a very similar coverage to that of *Engineering Index.* The monthly issues are cumulated quarterly and then annually.

A publication devoted solely to electronics is *Lectrodex* (formerly *Radiofile*). This gives about two thousand entries a year and is in the main directed to radio service engineers and radio amateurs. It is also of some value as it lists the more popular and ephemeral papers not covered by the more erudite abstracting journals. It is bi-monthly but the second and subsequent issues in each year are cumulated, so that eventually one keeps the final issue in each year and throws the remainder away.

A more recent publication is *Electronics Guide.* This is published annually and merely lists under a score or so of headings (aerials, audio, etc.) the papers published month by month; no pagination or authors are given.

A new journal commencing publication in January 1961 is *Current Contents of Space and Physical Sciences* and it will be published weekly. The contents pages of about five hundred journals will be reproduced in this publication. Practically all the major journals concerned with electronics (both English and foreign language) will be covered by this service.

SPECIALIST FIELDS

I would now like to turn to abstracts which are devoted to some specialized fields. In many cases such abstracts are incorporated as part of a technical journal. Though the policy in some cases may be open to the objection that the editor seems to be suffering from insufficient copy and seeks this way of giving a respectable bulk to his journal or feels that the inclusion of abstracts gives tone to his publication, there are many instances when abstracts of high repute are appended to technical journals.

Applied Electro-acoustics

A well-established series of abstracts appears in the *Journal of the Acoustical Society of America.* These are headed 'References to contemporary papers on acoustics'. The section headed 'Applied acoustics, instruments and apparatus' contains papers coming within the electronic field, including such topics as radiocommunication equipment and, in particular, sound recording is extensively covered. Only very brief abstracts, in many cases titles only, are given.

Vacuum techniques

The journal *Vacuum* contains an extensive section of abstracts headed 'Vacuum classified abstracts', and this is particularly valuable for the entries devoted to the manufacturing techniques of electronic valves.

Computers

Computers have become a major branch of electronics, and we now find three specialist journals providing abstracting services. The first of these is *Computer Abstracts*. This is a British publication published monthly, and it is a refreshing thing to be able to point to a new British initiative in the abstracting world, though I am afraid this remains the sole example in the electronics field.

Abstracts of computer literature are also given in *I.R.E. Transactions on Electronic Computers*. The present series began in January 1959 and the compilation is done by a commercial firm—the service is quite distinct from that which appeared in earlier issues, 1957 or so, which was the effort of a private compiler. Each issue contains subject and author indexes and cumulative lists are published annually in the December issue.

A third service is that given in the *Communications of the Association for Computing Machinery* which commenced this year under the title 'Reviews and Abstracts'. All three cover design of machines, circuits and components, as well as the mathematical techniques and applications, though the abstracts in the *Communications* have a stronger bias to the mathematical side.

Solid State

The invention of the transistor has resulted in a whole spate of literature on the solid state, and there is no sign of this abating.

The subject is now covered by the journal *Solid State Abstracts* (published monthly by Cambridge Communications Corporation, Cambridge, Mass.). It has only just assumed this title; previously it was known as *Semiconductor Electronics* and as such it provided a somewhat indifferent service. Intended as a bi-monthly journal, the issues were appearing at about four-monthly intervals, with the eventual result that the September 1959 issue appeared in November 1960, though in fact the issues dated 1959 contained entries relating to papers dated 1960. However, we are promised better things for the future.

In the foreword to the October issue, the first under the new title, the following explanation is included: 'In addition to the theory, fabrication, and use of semi-conductor materials and devices, this new journal will cover ferrites and other magnetic materials, ferroelectrics and other dielectric materials, superconductors, many topics related to metals and crystalline salts, etc., in short, everything that has recently come to be known as "the solid state". A glance at the Table of Contents will show that we intend to follow these materials from the time they are removed from the ground for purification and crystallization to the time they are launched from the earth as electronic components in a missile or a satellite.'

Periodical papers, US Government reports and patents are covered but there is selective basis for inclusion. A special note is made of proceedings of conferences that are included. Author and subject indexes are included in each issue with annual cumulative versions.

It is interesting to contrast this type of coverage with that given by, say, *Science Abstracts* with its division between physics and engineering. Probably no one reader is likely to be interested both in the processing of materials as they are dug up and the instrumentation of a space rocket; indeed it may be unusual for any one organization to cover such a field. On the other hand, when a division is made between physics and engineering as in *Science Abstracts*, there is difficulty as to where the dividing line should be drawn, and it is fairly common for searchers to complain that for a particular topic they do not know whether to search in the one or the other.

SPECIALIZED ABSTRACTS IN RELATION TO COMPREHENSIVE SERVICES

On the general question of the specialized abstracting journals, it is perhaps worth noting some remarks that Professor Bernal made at the International Conference on Science Abstracting[1] in Paris in 1949. His point was that there should be 'a few comprehensive abstracting journals each covering a large portion of the scientific domain so that four or five journals publishing indicative abstracts would between them effect the uniform abstracting of the whole of science'.

These should be supplemented by 'any number of specialized publications with informative abstracts needed for well-defined groups of readers in, for example, the following domains: mycology, electronics, electroplating, etc.'.

Whilst, owing to the enormous growth of electronics in the past decade, the coupling of the word with minor sciences seems odd today, these suggestions by Professor Bernal seem not to have worked out in one way. It is often the comprehensive journals *Science Abstracts* and *Chemical Abstracts* which provide the longer abstracts and the specialized ones such as *Computer Abstracts* and *Instrument Abstracts* which provide the shorter entries.

JOURNALS WHICH DEVOTE SOME SPACE TO ELECTRONICS PAPERS

A further category of abstract journals embraces those devoted to some field of science, but which includes entries which cover the applications of electronics to that science.

Navigational aids

Navigational aids provide one example of this. In this sphere *Index Aeronauticus* includes about fifty abstracts per year on electronic navigational aids. This is published by the Ministry of Aviation, includes patent specifications and in particular the abstracts from papers in the journal *Navigation* which are of value because they are not covered by *Science Abstracts*.

Somewhat similar but much less disciplined are *Aero-Space Reviews* which appear in *Aero-Space Engineering*. About eighty abstracts on electronic subjects are included every month, of which some entries relate to foreign journals, but in general the selection is arbitrary and does not appear to be based on any strict relevance to aeronautical applications.

Meteorological and Geoastrophysical Abstracts

This contains abstracts covering satellite instrumentation and studies, radio and radar meteorology, ionospheric studies.

Apart from this, the journal is worthy of mention as being a particularly good example of the abstracter's art. Each issue includes a list of collected works, textbooks and atlases, manuals, handbooks, and translations. Abstracts of papers are arranged under subject headings with UDC numbers added, and with each heading a list of cross-references is given. Each issue has an author and subject index—and the subject index is an impressive compilation.

The bibliographical detail given in each abstract is commendably full and each abstract concludes with a list of headings under which it is listed in the subject index. Thus 'Forecasting the summer run-off of the Rhine river' is listed under 'run-off forecasting', 'forecasting techniques', 'snow surveys', and 'Rhine river'.

As well as the abstracts, each issue, apart from the December number, also contains an extensive bibliography on a specific subject. The topics for these have included ionospheric propagation, radar cloud physics, radio astronomy.

Instrument Abstracts

Instrument Abstracts, which prior to May 1959 was known as the *Bulletin of the British Scientific Instruments Research Association,* contains six thousand entries per year.

About one-eighth of the entries have no abstracts; for the rest there is an average of twenty-five words to the abstract. There is an author index in each issue and there are annual subject and author indexes. The subject index seems quite adequate—there is, however, one drawback in that it is not issued until late in the year following the volume to which it relates.

The entries are arranged under about twenty headings and of these six (control, data handling, electronics, magnetism and electromagnetism, navigation, and telecommunication) consist of abstracts of electronics papers, and in fact about one-quarter of the total abstracts deal with electronics.

In a comparison I made of the entries in the May 1959 issue I found that approximately one-half of the entries on electronics subjects did not appear in *Science Abstracts*. Again the omissions from *Science Abstracts* were those relating to papers in foreign language journals or in the popular technical Press.

Chemical Abstracts

It is almost impossible in any talk on abstracting journals not to mention *Chemical Abstracts*. This is not only because of the abstracts it contains of papers relating to electronics (topics, in particular, covered include semiconductor physics, plasmas, high-pressure arcs, maser devices) but because of the standard it sets as an abstracting journal.

During last year 133,000 abstracts were published whilst some nine thousand journals are scanned. Its comprehensiveness can be gauged from the fact that a journal like *Electronic Engineering* (which one does not readily associate with chemistry) is scanned to pick up a paper on Compound semiconductors. American PB reports, patents, and books are included.

Obviously with such an undertaking the compilation of annual indexes is a considerable task and at present the author index is published five months after the end of the year to which it relates, whilst the subject index comes out more than one and a half years after the end of the volume. It is understood that steps are being taken to speed up the indexing, and by 1963 it is estimated that the subject index will be published within a few months of the end of the year.

Comprehensiveness has to be paid for: the price of the publication, which in 1956 was £23, increased first to £120, later to £210; next year it is to be £330. This, of course, is on the expensive side.

Nevertheless if one is going to ask for a high standard, one must face the cost. I think there is far too great a tendency for both managements and librarians to shy away from this fact, and indeed to recoil with horror at the idea of spending any appreciable sum on abstracting services.

NEW DEVELOPMENTS IN ABSTRACTING SERVICES

I should like just briefly to deal with a few recent developments in abstracting methods and publications.

Abstracts on cards

In addition to providing abstracts in periodicals or book form, a number of organizations also issue abstract cards. Among such services are those provided by *Engineering Index, Solid State Abstracts, Computers* (Cambridge Communications Corp.), and *Internorm*.

In the case of *Engineering Index,* of course, the cards are the alternative to waiting for yearly volumes. The main advantage claimed is that one can keep the abstracts in subject order in a card index rather than in chronological order in periodicals.

At the same time the filing of cards can become a tiresome business. It may not be so bad if one is content to file the cards using the system of indexing used by the originator. Often, however, the recipient will wish to incorporate these cards into his own indexing system which, in all probability, is different; and this involves him in considerable work.

My own experience is that, whilst we receive cards from a central organization in London which we put to good use, we do at times find ourselves embarrassed by the floods of cards reaching us. Before we have disposed of one parcel, the messenger is staggering in with the next.

In general, an abstracting periodical is to be preferred to cards, with the proviso, however, that there must be frequent and cumulative indexes.

Abstracts of Russian papers

The increasing interest being paid to Russian work is reflected in the coverage of Russian papers by abstracting journals. In fact, there are four related abstracting journals now devoted solely to providing abstracts in English of Russian papers.

Three of these, *Physics Express, Electronics Express,* and *Automation Express,* contain papers of interest in the electronics field. The *Physics* covers: solid state and semiconductors; the *Electronics*: aerials, tubes, circuit elements, television, radio, etc.; and the *Automation*: computers, data handling, servos, and telemetering.

Each issue of these journals contains forty pages and a typical issue contains fifty-six abstracts. The abstracts vary in length from a sixty-word entry to one covering two pages complete with mathematics and illustrations.

The delay in time between the publication of the Russian paper and the appearance of an abstract in an *Express* seems to be about six months. In comparison abstracts (very much briefer) appear in *Science Abstracts* within a period of five to eight months after publication. The time delay for the publication of complete cover-to-cover translations of Russian seem to vary from about six months (American Institute of Physics publications) to nine months (Pergamon publications).

Chemical Titles

The publishers of *Chemical Abstracts,* the American Chemical Society, are also to bring out next year a new journal *Chemical Titles.*

This journal is to be published fortnightly and will provide author and title index to papers within two weeks of the publication of the papers indexed. The title indexes are prepared by a computer under a keyword system. For example the paper 'Zener tunneling in semiconductors' is listed under 'Zener', under 'tunneling' and under 'semiconductors' and larger titles will have correspondingly more entries.

One has heard a lot about machine retrieval in theory but very much less of it in practice. The new journal does seem to provide a means by which the advantage of a machine is being made available extensively to librarians and literature searchers generally. It may well be a landmark in the history of documentation. The idea of each individual librarian having a computer at his beck and call is a long way from realization, but it is very evident that a computer located in some central organization churning out material in digestible form for a variety of librarians is a very much more practicable proposition.

American abstracters organization

At the beginning of my remarks I referred to an apparent lack of concern in this country on the question of abstract journals.

In America one does find a greater discussion of the subject going on. There is, in fact, an organization known as the National Federation of Science Abstracting and Indexing Services which has held three annual conferences[2, 3, 4] and has inevitably organized a number of working parties on various aspects of abstracting.

The Federation has also published a guide[5] to the American abstracting services.

I think perhaps I cannot do better than conclude by quoting some remarks made in a welcoming speech by Dr John Fogg at one of these conferences.[2]

He said to this gathering of abstracters:

> 'We are all interested in the furtherance of science. The more agencies there are that are working in co-operation, the better will it be for science. I have seen here no conflict of interest, I have merely seen co-operation and assistance and effort. But not always in scientific societies do I see this, and so I would congratulate you on the fact that you have come together for mutual assistance rather than for separate conflict.
>
> 'As a biologist I can't help but feel that science necessarily leads to change, and yet when you look at the problem of the diffusion of scientific information do consider some of these elements as examples of how we do not change as rapidly as we foster change by new scientific discovery.'

ACKNOWLEDGMENTS

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APPENDIX

QUANTITATIVE ANALYSIS BASED ON FIGURES FOR 1959 OR 1960 ISSUES

Journals	*Cost per year*	*No. of entries per year*	*Length of abstract average no. of words per abstract*	*Cost per abstract in pence*	*Remarks*
Science Abstracts A and B	£10	21,700	120	0.11	(1959)
Chemical Abstracts	£210	133,000*	100	0.38	(1959—price will be increased considerably in 1961)
Computer Abstracts	£25 4*s.*	2,200	35	2.15	(1960)
Engineering Index	£28	30,000*	50	2.9	(1959)
Index Aeronauticus	£5 5*s.*	3,900	70	0.33	(1960)
Instrument Abstracts	£4	6,000	25	0.16	(1960)
Meteorological and Geoastrophysical Abstracts	£24	4,200	120	1.37	(1960)
Nuclear Science Abstracts	£14 10*s.*	23,000	100	0.15	(1959)
Physics Express (*Electronics Express* similar)	£23	500	Very variable	11	(1959)
Solid State Abstracts	£10	3,700	110	0.65	(based on Oct.–Nov. 1960)
Abstracts and References (published in *Electronic Technology*)	£3 7*s.*	4,250	40	0.19	(1959)

The prices shown are those which cover also annual and (in one case) quarterly indexes.
* These figures are those given in reference 5.

INCREASES OVER THE PAST TEN YEARS

	1949 *Abstracts*	1959 *Abstracts*	*Increase*
Abstracts and References (in *Electronic Technology*, formerly *Wireless Engineer*)	3,600	4,250	18%
Science Abstracts A and B	11,650	21,700	87%
	Columns	*Columns*	
Chemical Abstracts	9,538	23,114	143%

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WILFRED E. GOODAY, ARSM, DIC, MIMM, FIL. Technical translation from French and Roumanian. 161 Rivermead Court, London SW6. Renown 1912.

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I.C.I. AKERS RESEARCH LABORATORIES have a vacancy for a female LIBRARY ASSISTANT aged 20–23 to work in a small scientific library. Preference given to person with library experience and first professional qualification. Apply Personnel Services, I.C.I. Ltd, Akers Research Laboratories, The Frythe, Welwyn, Herts.

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MARKS & SPENCER require a TECHNICAL INFORMATION ASSISTANT to assist in the general work of the Economic Information Department. The post calls for versatility and the ability to translate technical information into simple English. The basic qualifications required are GCE (or equivalent), including advanced level in science, or the possession of a university degree with some science subjects. Please write, giving details of qualifications, experience, and present salary to the Staff Manager, Marks & Spencer Ltd, Michael House, 47 Baker Street, London W1.

PHYSICS GRADUATE required as LIBRARY RESEARCH ASSISTANT for *Encyclopædia Britannica*. Work: to answer from library sources questions on physics and technical subjects received from subscribers. Applications (in handwriting) to Mrs Field, Encyclopædia Britannica Ltd, 67 Great Russell Street, London, WC1.

PRESSED STEEL COMPANY LIMITED. With the expansion of research and development within Pressed Steel, the company now wishes to appoint an ASSISTANT LIBRARIAN who will assist in the building up of the information section in the Research and Development Department. Initially the work will be mainly cataloguing, but there will be opportunities for advancement in an expanding section. Applications are invited from librarians (Chartered) with sound cataloguing and other experience, preferably in a special or technical library. A knowledge of languages and a technical background would represent an attractive attainment. The appointment will be to the permanent staff and will carry a salary commensurate with experience. Write in strict confidence, giving full details of education, training, experience, and salaries earned to the Staff Officer, Pressed Steel Company Limited, Cowley, Oxford.

TECHNICAL ASSISTANT, male or female, aged 25 to 30, required in Intelligence Department of BRITISH ALUMINIUM COMPANY (London SW1) to deal with technical inquiries and abstract technical literature. Graduate preferred, knowledge of foreign languages desirable. Salary in accordance with age and previous experience. Applications in writing, stating full particulars, to Staff Manager, British Aluminium Company Limited, Norfolk House, St James's Square, London SW1.

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THE BRITISH COKE RESEARCH ASSOCIATION. Technical Assistant required to Librarian and Information Officer. Duties will include the gathering, assessing, and distribution of technical information from world sources and editorial work on publications. Applicants should have a knowledge of coal science or carbonization. Salary according to qualifications and experience. Write giving details to the Secretary, the British Coke Research Association, Chesterfield, Derbyshire.

THE BRITISH PETROLEUM COMPANY LIMITED has an immediate vacancy for a female PATENT ABSTRACTOR SEARCHER (age 25–35). Science degree with chemistry essential. Knowledge of French and/or German and technical abstracting desirable. Five-day week; luncheon club with 1*s* lunches; non-contributory pension scheme; excellent sports and social facilities. Applicants should write stating age, qualifications, and experience quoting H.F.26 to Box 4346, c/o Hanway House, Clark's Place, EC2.

THE CEMENT AND CONCRETE ASSOCIATION requires a DEPUTY TECHNICAL LIBRARIAN for its expanding library. Applicants should have a good level of education and preferably a librarian's qualification. Experience of technical libraries and building and civil engineering desirable; knowledge of foreign languages an advantage. This is a responsible post with scope for initiative, particularly in anticipating information needs. Routine work includes reading technical literature, abstracting, literature research, preparing bibliographies and answering technical inquiries. Salary in accordance with qualifications and experience. Applications in writing should be addressed to the Librarian.

THE COTTON SILK AND MAN-MADE FIBRES RESEARCH ASSOCIATION (Shirley Institute). ABSTRACTORS are required for the Information Department. Applicants, who should be science graduates and preferably, but not essentially, have knowledge of textile technology, must be capable of abstracting technical and scientific papers from foreign periodicals. The initial salary offered will depend upon qualifications and experience, and will carry superannuation under the Federated Superannuation System for Universities. Applications, giving all relevant details, in handwriting, should be addressed to the Director, BCIRA, Shirley Institute, Didsbury, Manchester 20.

For sale

NATURE, vols 1–178 bound; 179–80 (1957) unbound. Missing vol 66 (1092), 157 (1946). Offers to Librarian, Institute of Archaeology, 31–34 Gordon Square, WC1. EUS 6052.

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OFFERS invited for *Chemical Abstracts* indexes: decennial 1937–46, collective formula 1920–46, patents 1907–46, all bound in very good condition. Thomas Hedley & Co. Limited, P.O. Box Forest Hall 2, Newcastle upon Tyne 12.

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ASLIB INFORMATION, nos 1–20, 22–5, 35–6, 38–56, 59–60, 177, 182, 184–5. Aslib, Box 162.

ECONOMIC JOURNAL, March, June, 1918; September 1919, wanted urgently to complete set. Librarian, Phillips & Drew Ltd, Pinners Hall, Austin Friars, London EC2.

SHEET METAL INDUSTRIES, March 1957, *34; Steel Processing,* May 1957, *43; Steelworks analysis* by J. O. Arnold and F. Ibbotson. 4th ed. London, Sir Isaac Pitman and Sons Ltd, 1923. British Iron and Steel Research Association, Hoyle Street, Sheffield 3.

SONNEMSCHEIN'S BEST BOOKS, 3rd edition. Aslib.

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Volume 13 **April 1961** **Number 4**

ASLIB CALENDAR

April

FRI.21 – SUN.23. Electronics Group annual conference at Ashridge College.

TUE.25. Winter meeting. Dr Tom Margerison on 'Science for the layman'.

Furniture Group annual general meeting at Victoria and Albert Museum.

FRI.28. Technical Translation Group meeting. See paragraph below.

May

THUR.4. Third conference on business records.

TUE.9. Winter meeting. See paragraph below.

June

FRI.23. Technical Translation Group visit to Birkbeck College.

July

SAT.1. Fuel and Power Group visit to UKAEA, Harwell.

THUR.13 – SUN.16. Aeronautical Group annual conference at Cranfield.

FRI.21 – MON.24. Northern and Midlands Branches conference at the University College of North Staffordshire.

September

WED.6 – SAT.16. FID conference in London.

Winter Meeting

The last winter meeting for the 1960–1 season will be held at 2.30 p.m. on Tuesday 9th May at the Royal Aeronautical Society, 4 Hamilton Place, London, W.1. Sir Frank Francis, Director of the British Museum, and Professor R. S. Hutton will speak about the proposed National Reference Library of Science and Invention as envisaged in a symposium published in the *Journal of Documentation,* vol. 17, no. 1, March 1961.

Technical Translation Group

A meeting will be held at 4.40 for 5 p.m. on Friday 28th April at Aslib. The subject will be reproduction of translations and the speakers Mr J. B. Reed, DSIR, on preparing a master for reproduction and Mr Martin Wright, BISI Translation Service, on lithographic reproduction.

On Friday 23rd June members will be able to visit the Department of Numerical Automation, Birkbeck College, to see current work on mechanical translation and linguistic analysis. This visit has been arranged by kind permission of Dr A. D. Booth. Application forms will be sent to Group members later.

Fuel and Power Group

On Saturday 1st July, members of the Group will visit the Atomic Energy Research Establishment, Harwell, where they will be welcomed by Miss M. Gosset, Librarian and Information Officer. The programme for the day includes lunch, a film, and a visit to the new library. Numbers are limited and it is regretted that no more applications can be accepted.

Definitions of Editions and Reprints

The Publishers Association has recently issued a single foolscap sheet (reference 23/61) of 'Recommended definitions of reprints, revised editions, etc.' The main definitions are:

Edition, an edition may be the first printing of the original work (i.e. 'First Edition') or a subsequent printing of a revised text (e.g. 'Second Edition'). An edition subsequent to the first edition should contain other than merely minor amendments.

Impression, a number of copies printed at any one time. When a book is reprinted or reproduced from the same setting of type the word impression should be used and not the word edition. . . .

If the type is reset without the text of the edition being changed the Association recommends that this should be noted: Fourth impression (reset) 1972. If minor amendments are made prior to a new impression this should be noted: Fifth impression (with amendments) 1974.

Terminology for Thermoplastic Welding

The Institute of Welding reports that the Joint Committee on the Welding of Thermoplastic Materials which is sponsored by the Plastics Institute, The British Plastics Federation, and the Institute of Welding has been examining the existing terms and definitions for the welding of thermoplastic materials. A list of recommended terms and definitions has been prepared and approved by the three sponsoring organizations for issue as a tentative recommendation. The Joint Committee will welcome comments on recommended terms and definitions, a list of which can be obtained from the Technical Officer, Institute of Welding, 54 Princes Gate, Exhibition Road, London, SW7.

200,000 Volumes on the Move

The National Lending Library for Science and Technology (formerly the Lending Library Unit), Department of Scientific and Industrial Research, is on its way to its new headquarters at Boston Spa, Yorkshire. The first railway container of literature was dispatched from London on 28th February and further instalments follow daily in four-ton containers. It is expected that the stock of more than 200,000 volumes of scientific and technical literature will be transferred within six months. The move is being carried out by the Ministry of Works which has been responsible also for conversion of the former Royal Ordnance factory to suit the special purposes of the library.

The present collection of scientific literature was started by DSIR in temporary premises at Regent's Park four years ago. A further 100,000 volumes will be transferred to the new library from the Science Museum Library, in South Kensington, and the amount of literature to be made available will be increased progressively until the new library is fully operational in the autumn of 1962. Its main object will be to supply a loan and photocopying service for scientific literature.

Until 1st July 1961 inquiries for the library should continue to be addressed to 20 Chester Terrace, Regent's Park, London, NW1; telephone Hunter 8361.

University College of North Staffordshire Library

A Nuffield Foundation grant of £20,000 has been announced for the University College of North Staffordshire to set up and maintain a library appropriate for the Foundation Year of general studies. The Foundation Year at the College is a course of study in the evolution of western civilization which is undertaken by all students in their first year. The Library will be housed in the new university building now under construction and will contain multiple copies of texts which are basic to the study of each of the twenty or more subjects which make up the Foundation Year course.

Librarianship Students Association

The Annual Lecture of the Librarianship Students Association, North-Western Polytechnic, will be given at 6.30 p.m. on Tuesday 16th May at Chaucer House, Malet Place, London, WC1. The speaker will be Professor Hyman Levy, Emeritus Professor of Mathematics, Imperial College of Science and Technology, and his subject 'The popularization of science: an analysis.' Aslib members and other interested persons will be welcome.

Bibliography of Cutlery

The Sheffield City Libraries have recently issued a thirty-page booklet entitled *Cutlery: a bibliography,* published by the Libraries, Art Galleries, and

Museums Committee. The list has been prepared by the staffs of the Libraries of Commerce, Science, and Technology, and the General Reference Library. It contains some 150 entries arranged under the main headings of history, industrial organization, design, steels, general manufacturing processes, individual products, silver and flatware, auxiliary trades, and periodicals. *Cutlery: a bibliography* is obtainable from the City Librarian and Information Officer, Central Library, Sheffield 1, price 2*s*.

Indexing Course

A training course in indexing has been arranged by the Society of Indexers in collaboration with the North-Western Polytechnic. Ten weekly sessions will be held at the Polytechnic from 6.15 to 7.45 p.m. on Fridays from 6th October to 8th December inclusive. The syllabus comprises choice of names; alphabetization and arrangement; historical and biographical indexing; scientific and technical, medical, and legal indexing; indexing of periodicals; and editing and preparation for press. The fee for the whole course is 21*s*. Full details and enrolment forms may be obtained from G. Norman Knight, 3 Western Mansions, Western Parade, Barnet, Herts.

Course on Patents

The Department of Professional Studies, College of Commerce, Liverpool, has announced a two-day course on patents to be held on Wednesday and Thursday, 3rd and 4th May. The programme covers aspects of patent work which were not, through lack of time, covered in a course on patents held in 1960. It commences with a résumé of the 1960 course and goes on to cover examination of British patents and present procedure up to grant; foreign patents procedure, international convention, and structure of specification; infringement of patent and validity; indexing and classification; and miscellaneous legal aspects of patents. A visit to the Patents Library, Liverpool Central Public Libraries, has also been arranged. The course fee is 20*s*. Further particulars may be obtained from the Head of the Department of Professional Studies, College of Commerce, Tithebarn Street, Liverpool 2.

Library Association Conference

The annual week-end conference of the Library Association, London and Home Counties Branch, will be held from Friday 28th to Sunday 30th April at Folkestone. The main topics of the conference are: local government reorganization and its likely effects on librarianship, staffing and education, reorganization of the Library Association, and public relations and the changing pattern of librarianship.

Euratom Research into Documentation Systems

The Automatic Documentation Section (DOCA) of the European Atomic Energy Community Scientific Data-processing Centre (CETIS) is working on a scheme for international co-operation in automatic documentation, including compilation of all available data on systems at present in use. The project has been planned by arrangement with the FID–MSR Committee and will be carried out in collaboration with the German Documentation Company's Working Group on Machine Documentation. The work will be based on reports, proceedings, and magazine articles on methods and procedures adopted in documentation, but the main source of information will be a questionnaire to be compiled and circulated among the users of existing documentation systems. The answers are expected to yield specific information on the various systems used. The questions are split up into: *a*, general particulars; *b*, machine equipment and staff; *c*, procedures—indexing, classifying, coding, and programming.

This compilation is intended to serve several different purposes. First, when published, the information will provide everyone concerned, from the manufacturers of equipment and the research centres for data-processing technology to the documentation centres themselves, with an overall picture of the present status of documentation technology and processes. Secondly, it will give an indication as to trends in documentation technology which will enable DOCA to decide where to place the emphasis in the basic research work which it is carrying out in this field; at the same time it will provide a practical basis for the future international documentation network. Finally, the statistical results of the inquiry will form a useful basis for a general documentation system theory.

Commonwealth Agricultural Bureaux

The Commonwealth Agricultural Bureaux, Farnham Royal, Bucks, have announced the appointment of Sir Thomas Scrivenor, C.M.G., as Secretary to the Executive Council as from 10th April.

Unesco Bibliographical Handbooks

The ninth in the series of Unesco Bibliographical Handbooks is expected to appear in July. This is *Bibliographical services throughout the world, 1950–1959* by R. L. Collison. It comprises a general survey of national and international bibliographical activity over the past ten years. This is followed by the report, the first part of which is arranged alphabetically by country and shows the progress made in over one hundred countries in national bibliography, library co-operation, special and retrospective bibliography, and training facilities. The second part of the report deals with the activities of more than eighty international organizations. A list of national bibliographical correspondents is included. *Bibliographical services throughout the world 1950–1959* will be published in English and French, approximate price 20*s*, 14 NF, $4, cloth; 15*s*, 10,50 NF, $3, paper.

New Journal *Kybernetic*

Stechert-Hafner Book News, January issue, announces publication of *Kybernetic: a journal dealing with the transmission and processing of information as well as with control processes in both automata and organisms.* The journal is published by Springer Verlag, Berlin, with contributions in English and German. It 'aims to present findings in information theory, theory of automata and control systems, mathematical foundations of communication theory, sensory processes and micro- and macrophysiology of the central nervous system in relation to information handling, information handling by task-orientated groups, and other related topics.' *Kybernetic* will be published irregularly, as material becomes available, for an annual subscription of \$20 (142*s* approximately).

US Index to Declassified Reports

It is reported that a printed index to recently declassified reports of the World War II Office of Scientific Research and Development is now available from the Office of Technical Services, US Department of Commerce, Washington 25, DC, USA, price \$8 plus \$2 foreign postage (total 71*s* approximately). The index is PB 161976, *Office of Scientific Research and Development Microfilm Index*. The reports are available only in microfilm or photocopy from Photoduplication Service, Library of Congress, Washington 25, DC, USA.

International Association for the Development of Libraries in Africa

It is reported that the former Association for the Development of Public Libraries in Africa has, with the extension of its activities to cover all categories of libraries, now become the International Association for the Development of Libraries in Africa, short title AIDBA. It proposes to establish three categories of libraries in each state: a national preservation library to acquire and preserve works printed in the country; public and school libraries; and research libraries for the use of universities, laboratories, etc.

Books for Africa

A scheme for supply of books for the various African states has been initiated by the Countess of Ranfurly, under the auspices of the English Speaking Union. More than 200,000 books have already been given, mostly by schools, but there is still a need for books for all ages. Technical books and encyclopedias are wanted as well as primers and fiction, duplicates are welcomed and even early editions of technical works. It is not important for books to be in first-class condition. All contributions should be sent to the Countess of Ranfurly, The English Speaking Union, 11 Charles Street, Berkeley Square, London W1.

NEW MEMBERS

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Williamson, Miss I.	Edinburgh

BETTER INDEXES FOR TECHNICAL LITERATURE

Conference arranged by Aslib and the Society of Indexers,
London, 31st January 1961

CHAIRMAN'S INTRODUCTION

THE Chairman for the morning session was Sir Stanley Unwin of George Allen & Unwin Limited. He spoke as follows:

During the fifty-six years in which I have been engaged in the book trade I have been a persistent advocate of indexes for books. As such a staunch and steady supporter of the cause I feel justified in sounding a warning.

As you all know, the best may be the enemy of the good, and I observe a tendency among enthusiasts in their quest for perfection to ignore economic considerations. In the case of books it is the paramount factor. How many of you, I wonder, have ever paused to consider the relation between the cost of an index and the published price of a book? A good index is unlikely to run to less than eight pages of small type; I notice that the one in my autobiography runs to nearer fifteen pages.

Now the cost today of setting even eight pages in small type is unlikely to be less than £12, the paper for these additional pages £7 per thousand copies, and they add of course their modest quota to the cost of the binding.

In these days published prices are round about four times the cost of paper, printing, binding and jackets—in America nearer six times. Translated, therefore, into its effect on the published price, a very modest eight-page index may involve an extra two shillings per copy without allowing for any fee to an indexer. Perhaps you will understand why publishers so often throw the onus of making the index upon their authors. As a matter of fact I think it is a good thing for an author to index at any rate one book; it teaches him (or her) a lot, in addition to giving him (or her) a healthy respect for indexers. I may add that I took my own medicine and myself prepared the index for *The truth about publishing.*

Now I emphasize this because the books that most need good indexes are the scholarly ones which are those most handicapped by the inflationary costs of production. The editions are small, and the cost per copy high even without an index. In brief, if you want indexes you must be modest in your demands, and ask yourselves that uncomfortable question 'What will the traffic bear?'

MOANS BY A USER

J. F. HINSLEY, F.I.M.
Chief Radiologist and Physicist, Edgar Allen & Company Ltd

Conference on Indexing, arranged by Aslib and the Society of Indexers, London, 31st January 1961

NO two persons engaged in technology have exactly similar requirements. Whatever I may say, therefore, will be coloured by my personal experiences and the searches that I have made for information from time to time. Before I commence the serious business of analysing these experiences, I must make it clear that I do not 'moan' by inclination. My dictionary interprets 'to moan' as 'to bewail audibly'. If, therefore, you hear me 'bewailing' I ask you to bear in mind that my target is the 'system' or the 'establishment'. In the words of Mr Philip Unwin,* 'one attacks the ball and not the man'. Accordingly, my business is not to attack the publishers but to turn your attention to the fetters (perhaps of convention) that hamper them in the provision of—and ourselves in the search for—technical information.

Out of all the sources of information available to me I have chosen the following restricted sample for discussion:

a. Journals; e.g. *Nature, Scientific American,* technical publications in engineering, metallurgy, electronics, applied physics, etc.
b. Publications by learned societies; e.g. Iron and Steel Institute, Institute of Metals, Institute of Physics, Society for Analytical Chemistry, etc.
c. Lectures and conferences.
d. Civic Information Service (of the Science and Commerce Library, Sheffield).
e. Works laboratory library—say 1,500–2,000 books plus facilities for borrowing from many other private libraries (SINTO)†.
f. My personal library.

By means of these sources I obtain background, basic, or general knowledge from *d, e,* and *f* and from bound volumes of *a* and *b,* and up-to-date information from *a, b,* and *c.* The ground covered agrees fairly well with the terms of reference of this conference with the exception of 'newspapers' if this term is construed to mean the popular Press. It is necessary to be very careful in taking the daily papers as scientific authorities: some of the more sedate dailies, however, publish some excellent supplements contributed to by experts and authorities of established reputation, without the shadow of a sub-editor's blue pencil hovering around. I am not aware of a published index to a newspaper other than *The Times* index. Some papers and supplements carry a list of contents, however. If I moan here I may only display my ignorance of Fleet Street!

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* Brookes, B. C., *ed.*, Editorial practice in libraries, Aslib, 1961, p. 173.

† Sheffield Interchange Organization.

How far am I helped by indexes when using the other sources? Taking *d* first, I feel sure that the Civic Information Service must have an extraordinarily good card index prepared by a master hand. Top marks are awarded, therefore, but it is really outside our scope. The members of class *a* usually publish indexes for both author and subject and so do most of *b*. The editors of journals in class *b* often produce six-monthly and twelve-monthly indexes, and sometimes cumulative indexes running for longer periods. There is not much to bewail here.

There are now *c*, *e*, and *f* left. The last two can be lumped together since they both concern technical books written as texts or as works of reference. Class *c*, however, can be a very important source of information, in particular, conferences are very valuable. These are usually organized by one or more of the learned societies in order to throw light on and discuss important and topical subjects, for example 'Materials for use at high temperatures' or, coming nearer home, 'Better indexes for technical literature'.

The conferences may be spread over two or three days with so many contributors that parallel sessions are quite common. It is not unusual for five or even six papers to be taken in a morning session and the method of working involves prior distribution of (unindexed) preprints to all conference members. In the conference each author is allowed, say, fifteen minutes or so to skip through the main points of his contribution; his listeners—presumed to have read the preprints—follow this part with questions and discussion. Some of the information disseminated in this manner is already in print; some—the discussion—may get into print under some such heading as 'Discussion at the autumn meeting' (but not always as an exact record because kindly editors send out proof slips for contributors to vet); the balance of information goes into store in the listener's memory together with what is, perhaps, most valuable of all—the information gleaned from discussing the subject with his neighbour. If the listener is lucky, some of this memory-stored matter may be immediately useful to him. If, however, an interested person is unable to attend, he must rely on seeing the paper and discussions printed in the Society's journal. Here we are up against one or two problems. First, Dr Urquhart has pointed out that the mean life of a piece of physical truth (m.l.p.p.t.) is about two years; second, the delay in publishing discussions is often twelve months, i.e. half the m.l.p.p.t.; third, the editor of the Society's journal may not have had full freedom to organize the reporting as he would have wished; fourth, if it is reported it has less than a fifty-fifty chance of being indexed.

Using data quoted by Mr Hanson and Miss Janes,* the position can be rendered pictorially (figure 1, page 92).

Some of the proceedings covered by this analysis were published by the organizers and the balance (about three-quarters of the total) were published commercially. Of the latter, one firm (publishing about one-eighth of the total sample) put out twenty-five publications of which only one had an index. This works out at about 96 per cent without indexes. (It is only fair to say that this is through no fault of the publisher.) I feel sure that most of those present will agree that this state of affairs justifies 'bewailing'. I can produce an example of a special report covering such a conference on a subject of great practical importance (322 pages, 4 gns net, and no index). I must admit that there are over four pages given to the names of the gentlemen who were fortunate enough to attend the conference, but I feel that this is a poor substitute for an index.

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* Lack of indexes in reports of conferences. *J. Doc.* vol. 16, no. 2, June 1960, pp. 65–70.

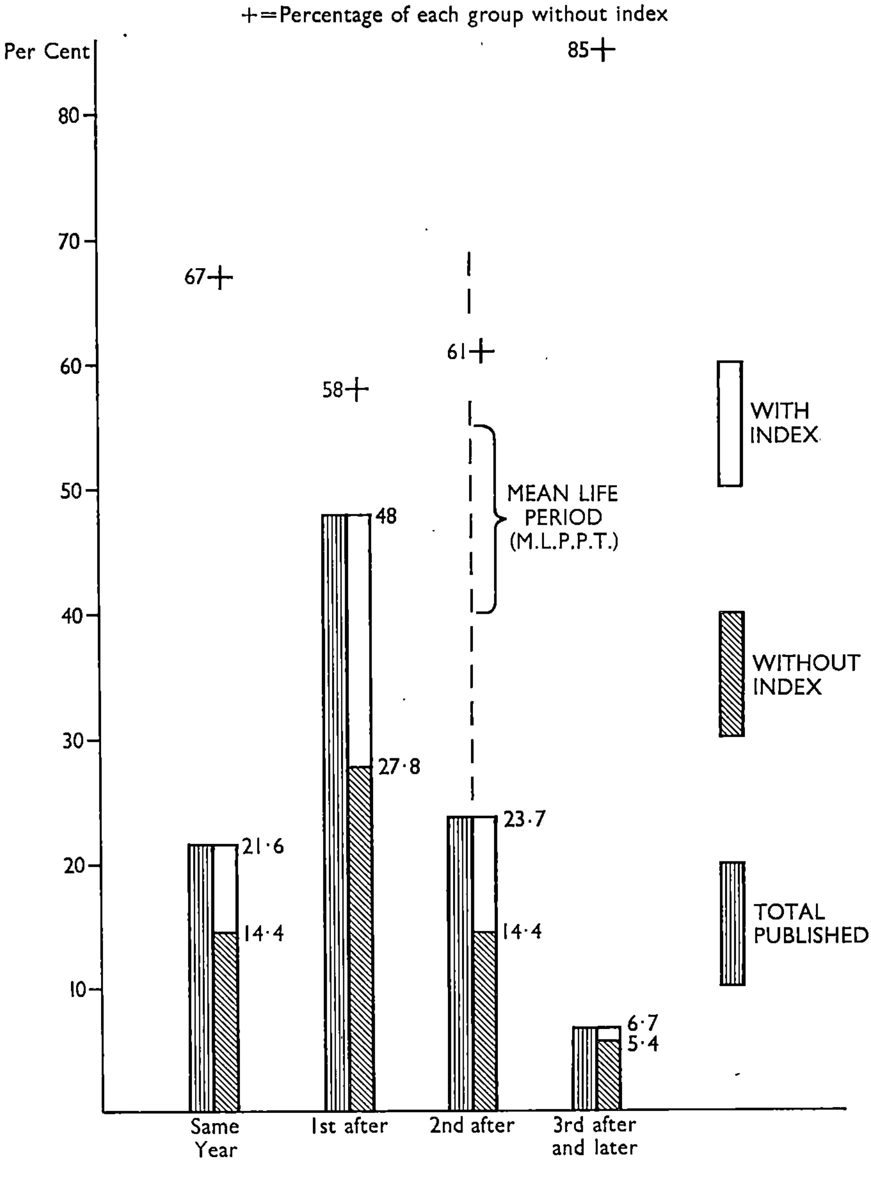

FIGURE 1. *Conference reports published with and without indexes.*

The last classes, *e* and *f*, refer to the class of literature represented by dictionaries, tables, encyclopedias, monographs, textbooks, reference books, and so on. We can dismiss dictionaries as self-indexing; encyclopedias, however, really need an index—taking a modestly-priced example such as Chambers's, we find an extraordinarily good index. Tables, by which I refer to tables of mathematical functions, may or may not have an index, depending on the character of the book. Taking well-known examples we have: Jahnke and Emde, *Tables of functions,* which has a comprehensive contents list and also an alphabetical index; so has *Tables of integrals and other mathematical data,* by H. B. Dwight. The *Chambers's seven-figure mathematical tables*, edited by J. Pryde, had a good idea in editions published eighty years ago. There was a list of contents giving pages of tables and corresponding explanations; this was supplemented by 'Contents alphabetically arranged' on the next page. There is not much room for moaning, therefore, in respect of tables.

Reference books, by their nature, are usually well indexed, and here I would instance the *Metals reference book* edited by Dr C. J. Smithells and the larger publication on the same subject, the *A.S.T.M. handbook*. The latter has a very good index indeed and could be used to demonstrate craftsmanship in indexing.

Textbooks and technical books are the last class of information-providers in my list. I could define a technical book for present purposes as 'an assembly of units of information'. Following computer practice, we could refer to these units as 'bits'. Any given book will contain so many bits and the task of the indexer is to identify all the bits by a short label or index entry. The number of words per bit may be m and the number of bits may be n, making mn words in the book part. In the index, suppose that p words are used for each index entry (usually two or three); this gives np words in the index and a ratio of $m : p$ words in the book to words in the index. I suggest that, in the interests of better technical books, someone suitably qualified should try to specify reasonable values for these quantities m and p and for the ratio $m : p$. It is to be expected that m will be greater for elementary textbooks than for advanced ones. An interesting example is provided by Chambers's *Encyclopædia* referred to earlier. This has approximately fifteen million words in the book part and 250,000 index entries, giving a ratio $m : p$ of 60 : 1.

CHASING INFORMATION

I will now follow the pursuit of some item of information wanted in a hurry and will refer to it as the 'quarry'. Suppose that I am seeking this information in an unfamiliar book. I refer to the index and do not find the quarry; my first reaction is 'it must be somewhere in here' and this is followed by reference to allied subjects in the hope of finding the quarry by association. If this artifice fails it may be necessary to read through several sections of the book before the quarry is located. This process, of course, forcibly improves my general education but not my temper because time has been lost. I try to spare a few seconds, however, to pencil the offending item in the appropriate index position ready for next time. Sometimes the index is so vestigial as to be little more than a collection of chapter headings.

NEW BOOKS AND FAMILIAR BOOKS

Where a book is an old friend the various pages become more or less photographed in the mind and the index is rarely used. I have seen books in which darkened edges or even loose pages are an unerring guide to the owner's chief interest. If a book is new and perhaps sent for review, however, the lack of an effective index is quickly apparent. Without pressing for legislation on the subject, I would suggest that all book reviewers test out the index of any book under review and make a frank assessment of its efficiency in their review. Unfortunately a good many reviewers seem to judge books mainly on the references given in the text. To my mind a book should be complete in itself, as far as possible, without dragging in outside references, few of which are accessible to the average reader. This remark, of course, does not apply to books or monographs that are in the nature of critical reviews. I have been told that publishers *do* read book reviews, so in future let reviewers aim for better indexes and play down the reference business!

ILLUSTRATIVE EXAMPLES OF INDEXES: GOOD, POOR, AND ABSENT

I have taken a random selection of books from my shelves and propose to comment on the indexing. In order that you may form some comparison I have restricted my choice to mathematics books. It is possible to supply a similar series of examples from other subjects, e.g. magnetism and other branches of physics.

Example 1. A good book by one of the noted mathematicians of the last century *A treatise on the dynamics of a particle,* by Dr E. J. Routh, dated 1898, 410 pages, a very good contents list in which each article is mentioned, and a seven-page index that is very complete.

Example 2. *Conformal representation,* a monograph by Carathéodory, dated 1941, 105 pages and a contents list detailed as for Routh. No index.

Example 3. A series of books, all by A. S. Ramsey. These are all exceptionally good books in their class. They are: *Dynamics,* parts 1 and 2, 1943 and 1944; *Hydrostatics,* 1936; *An introduction to the theory of Newtonian attraction,* 1940; and *Statics,* 1945. Every one of these books has a contents list giving articles, but none has an index.

Example 4. In contrast, and from the same publisher, we have *Dynamics,* by Horace Lamb, second edition reprinted 1942, 349 pages of text, list of contents mentioning each article, and a two-page index—just about adequate, but useful. Again from the same publisher and author, *Statics,* third edition, 1943. Here the index is a little more comprehensive, taking about three pages.

Example 5. Some arithmetic books: *An introduction to the theory of numbers,* by Vinogradov, 1955, 155 pages, contents list, but no index. In contrast we have *The higher arithmetic: an introduction to the theory of numbers,* by Professor H. Davenport, 1952, 170 pages, a good contents list giving each article, and a one-and-a-half page index. Though small, the index is useful.

Example 6. An outstanding example. *Analytical geometry of three dimensions,* by Sommerville, 1934. This has a wonderful contents list of nine-and-a-half pages, 410 pages of text, and a six-page index. For comparison in the same subject: *An elementary treatise on solid geometry,* by C. Smith, second edition, 1886 (reprinted 1946), with a good contents list of eight-and-a-half pages, 242 pages of text, but no index; also *An elementary treatise on coordinate geometry of three* *dimensions,* by R. J. T. Bell, 1918, with a ten-page contents list, 390 pages of text, and a four-page index which, however, is not as comprehensive as it could be.

Example 7. Finally, *Ruler and compasses,* by Dr Hilda P. Hudson, 1916. This has a contents list of eight lines and 143 pages of text. It could be a most useful little book but it has no index and very little of other aids to finding the quarry.

In conclusion, I believe that if you were to examine the indexes in the books that I have just mentioned, you would find that practically no improvement in the method of indexing can be detected between Routh's 1898 book and such of the present-day books as do possess indexes.

A PUBLISHER'S VIEW

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Conference on Indexing, arranged by Aslib and the Society of Indexers, London, 31st January 1961

IN the next twenty-five minutes, I intend to survey the various categories of books and periodicals on scientific and technical subjects which are issued by publishing houses or learned societies for trade sale. I shall discuss the type of index, if any, appropriate to each type of publication, and the best person to compile it. At the same time, I want to consider whether there are any practical difficulties in the way of following the ideal course and to suggest answers to some of Mr Hinsley's criticisms.

LEARNED JOURNALS

I will start with learned journals. These are, above everything else, the place for publication of the results of original research and I take the view that all original work ought to be published in an appropriate journal, even though the author may have referred to the work at a conference or have written a separate book about it. Choice of the correct medium for publication is important because it is clearly helpful to literature searchers to know in what sort of publication they can expect to find their quarry and it should make it easier for librarians to assemble and index the contents of their libraries.

Learned journals are invariably indexed on a volume or yearly basis, covering both subjects and authors, and of course the list of references at the end of papers immediately leads the literature searcher to a host of other relevant documents.

Journal indexes are usually only indexes to the names of contributors and to the titles of their papers, though the title should appear under more than one key word in the index. To make such an index requires little skill but its effectiveness does of course depend very largely on the careful wording of titles to the individual papers. Author and subject indexes may be combined if they are quite small.

Indexes of journals can usually be included in the last part of the volume. The indexing of all parts except the final one can be done well in advance and that for the final part while it is in page proof.

Many journals issue cumulative indexes covering several years and these can save much time in searching. I am sure there would be more cumulative indexes if there was more demand for them. Figures for the sales of some issued by my own house suggest that it is rare for as many as one-quarter of the subscribers to a journal to buy a cumulative index, where this is issued as an optional extra.

How useful would more detailed indexes to journals be? Would any really useful purpose be served if journals were indexed in the same way as books or is it enough—as at present—to be able to find the paper one is looking for? More detailed indexes would add to the cost and could hardly appear so rapidly. Perhaps librarians will have something to say about this, later.

A 100-year cumulative index of this detailed kind is now being compiled for the *Journal of Anatomy* and it will be interesting to see what the demand for it will be.

It is now almost true to say that the only people who can entirely comprehend an original paper are other workers researching in the same or adjacent areas of knowledge. Consequently this sort of detailed indexing of learned journals is a task which can only be undertaken by someone who is well versed in the technicalities of the relevant subject.

REVIEW ARTICLES

After original publication comes critical review articles. These are normally, but not always, longer than the papers in learned journals, cover a much wider field and *ought* to be more intelligible to the non-specialist. They are usually published in one of three places: in journals devoted only to reviews, in hard-bound volumes which go under the title *Progress* in this science or *Recent Advances* in that, or in general scientific journals such as *Nature*. If the review is too long for a journal it may become a monograph.

The indexing of volumes of review articles does not need that depth of knowledge essential in the detailed indexing of a learned journal, and I think that it is probably better to employ an experienced indexer with background knowledge of the subject than to leave the indexing to a scientist to do as a spare-time job. It is then a good thing to let the editor of the journal or book go through it to see whether it contains any technical errors; this procedure ought, I think, to avoid producing the sort of indexes which appear to Mr Hinsley to have been done by someone with no knowledge of the subject.

In choosing an indexer, one nearly always has to decide whether it is better to select someone with first-hand knowledge of the subject and perhaps little indexing experience, or to choose an experienced indexer with only sketchy knowledge of the subject. It is rarely possible to find the ideal combination. As I hope to make clear in this paper, my choice would depend very largely on the technical depth and range of the work.

About other categories of periodicals I know very little. Their range is enormous: from first-class professional journals such as those read by qualified engineers to those delightful papers issued by certain sections of the retail trade which appear to contain very little besides advertisements, lists of prices, and pictures taken at outings and parties of local groups of retailers; I suspect that the advertisements form the most useful section and I often wonder who indexes them. I know nothing at all about the indexing of periodicals in all these various categories, but as we have two representatives of *Engineering* taking part in the meeting, I am sure I can safely leave them to speak for themselves.

BOOKS

And so to books. There seems to be a belief in some quarters that any technical document over a certain length ought to be published as a book. Generally speaking, a book is only a proper medium for publication if it gives a coherent treatment of a clearly defined area of knowledge and is expected to have a life of at least five years. By these two simple standards a lot of printed material issued in book form ought not to be swelling the ever-increasing numbers of scientific books issued each year. Ph.D. theses, 'festschriften', unrelated collections of previously published articles and the proceedings of many conferences do not, in my view, measure up to the standards, and libraries and the book trade would benefit from their suppression.

MONOGRAPHS

Monographs are books on a single specialist topic written by a specialist. They are really only expanded critical review articles, but being a whole book instead of a part of a book or journal, they are rather easier to find in libraries.

A monograph, like a review article, usually contains a long list of references and it is often useful to attach page numbers to these so that the list of references automatically serves as an author index. In this type of book, chapter and verse should be given for almost every reference to other people's work.

Subject indexes in monographs are of two kinds. Always there should be a general subject index, but there may also be need for special ones: of biological species or of symbols, for example.

The author of a monograph is probably the best person to make the index and in most publishers' agreements the onus is placed on him to do it. He may, however, be too busy to make it or he may feel—or have learnt by previous experience—that he won't make a satisfactory index. In either of these cases, the author is happy if a professional indexer having some knowledge of the particular field of study is employed. Although monographs and volumes of review articles are pitched at more or less the same technical level, different considerations apply in choosing an indexer because the ranges of the two types of work are different.

Other authors may insist that no index is necessary and that there is a perfectly adequate contents list. There are two main reasons why a contents list is not a substitute for an index. In the first place, contents lists are extravagant of space and it takes about three pages of contents list to give the information which can be packed into a single page of index. You will see, therefore, that even quite a small monograph will need a contents list occupying several pages if it is to be a substitute for an index. The second objection to the contents list is that its arrangement is never so simple as that of the alphabetical index.

It is not easy to deal with the situation which arises when an author says that his book needs no index. Although one can point out to him that he has legally undertaken to provide an index or to pay for someone else to do it, a publisher has to bear in mind that he may want to publish another book by that author.

The absence of an index is one of the first things that book reviewers will light on for criticism, and I can assure you that publishers do not often go out of their way to encourage hostile reviews.

TEXTBOOKS

I turn now to textbooks—books written for students. There is, of course, continuous gradation between the less highly specialized monograph and the post-graduate textbook, but, generally speaking, textbooks cover a wider field than monographs and they are aimed at a more clearly defined level of readership. I was surprised to find on examining a selection of school textbooks, up to O level, that they were all provided with very brief indexes. Who uses these? The student, at this level, ought to know his way about his book—and if he doesn't, it would seem a good exercise for him to search through it. Perhaps it is merely tradition that insists on their inclusion. The sixth-form and university student should want to *refer* to a wide range of textbooks and indexes in them will serve a useful purpose. A single combined author and subject index usually suffices. The author is the best person to index a textbook; he is usually a teacher and is familiar with the needs of those who will use the book. The difficulties which arise with indexing monographs rarely occur with the authors of textbooks.

REFERENCE BOOKS

Reference books, by which I mean compilations of data or of descriptions of techniques and so on in particular fields, are dipped into rather than read from cover to cover. While monographs and advanced textbooks may still serve a useful purpose if they are without an index, reference books are quite useless unless provided with some very effective means for the reader to find his way about them. The arrangement of the material may itself be alphabetical and this is sufficient in a dictionary. It is not, however, sufficient in an encyclopedia because many subjects could be dealt with under several headings and the user needs to know which is the main one and what others there are; a separate index is therefore essential in encyclopedic works and is, I think, usually provided. It must be exhaustive and it must, as I've already said, distinguish typographically between the main reference to a topic and other places in the encyclopedia at which it is mentioned. The making of indexes for reference books is a major task and should always be undertaken by a very competent indexer. This applies, too, to other multi-volume works, for example, volumes of correspondence and large historical works, such as *The History of technology*.

SYMPOSIA

Symposia present peculiar problems in the way of indexing and one result of this is that they frequently lack indexes altogether. It was, I think, an examination by Aslib of the indexing of symposia which ultimately led to the decision to hold this conference. Most symposia are organized by societies and the list of speakers is selected by a committee; the one or two people who subsequently edit the proceedings—in the sense of seeing them through the press—may not be members of the committee at all. Their job is simply to get the book printed as rapidly as possible, although they are rarely given enough authority to deal with recalcitrant authors, who are, after all, their professional colleagues. However, this does not really matter, because all delays will be blamed on the publisher, in any case.

Inclusion of an index is likely to be a delaying factor, the editors have probably never made one before and doubt if they have the time amidst their correspondence with the contributors and their regular jobs, and no financial provision may have been made for paying someone else to do it. And why have an index anyway? After all, the main purpose of publishing the proceedings of symposia is so that the contributors can get their ideas and comments into print before someone else, usually in America, does the same thing. Editors and publication committees are interested principally in speed; only treasurers show much interest in sales.

Having said all that, let me say at once that properly planned symposia can make useful books, especially if they are not cluttered up with verbal remarks made on the spur of the moment and if the contributors are sufficiently well briefed that the contributions fit together without overlapping and without important gaps.

There is no reason why the inclusion of an index should delay a book. So long as late contributions are relegated to the end and drawing and blockmaking is carried through rapidly, the first proofs can be paged and the index made at that stage, for proofing out with the revised proofs. Galley proofs die hard; they make it easier for contributors to rewrite their pieces and some printers are not well enough equipped with furniture and formes to be able to impose all their books at once. Going straight into page also saves money, much more money in fact than it will cost to employ a good indexer and to set the index in type and print it.

Cumulative indexes for series of symposia ought to be as useful as for those of journals and sometimes they can be combined. For example, the Society for General Microbiology recently brought out an index to the first fifteen volumes of its journal and the first six of its symposia, published during the same period. The symposia contain review articles, which are published in this case *before* a meeting and so are intended to be read rather than heard, and the journal original papers. I know that somebody is finding this arrangement useful, because the index is selling rather better than cumulative indexes of journals alone seem to do.

I mentioned 'festschriften' and other miscellaneous collections of articles as being included among the 'non-books'. Unfortunately there is considerable pressure, particularly on University Presses, to publish volumes of essays dedicated to distinguished 'alumni' or of their collected works. This being so, they ought to be indexed and I take the view that for them, as well as for symposia and other volumes of review articles, the best person to make the index is an experienced indexer with background knowledge of the subject concerned.

I ought perhaps, before I close, to make some further reference to titles, since the provision of an adequate and truly descriptive title is a very important aid to locating information. Authors and publishers devote a great deal of care to the choice of titles on books, but are sometimes defeated, finding nothing entirely satisfactory and having to adopt a second best. In such cases the addition of a subtitle is often desirable. In judging titles it is as well to remember that, as with many other things, it is much easier to criticize other people's choices than to think up better ones oneself.

I am told that the proceedings of this conference are to be published. I will leave you to guess, from what I have said earlier, whether I think this desirable or not. But of one thing I am certain, and that is that all publishers will await with tremendous interest the no-doubt model index which will accompany the published proceedings!

ACKNOWLEDGMENT

I wish to acknowledge the helpful comments I have received from Mr P. G. Burbidge during the preparation of this paper.

THE TECHNIQUE OF INDEXING BOOKS*

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Conference on Indexing, arranged by Aslib and the Society of Indexers,
London, 31st January 1961

IT is impossible to give an exposition of the techniques of indexing in a twenty-minute talk, so I shall only try to draw attention to a few basic principles, with special reference to the indexing of medical books.

Preliminary considerations cover the mechanics of indexing, the use of perforated slips, typewriter, and alphabetical sorting-box, and the mechanical processes involved.

Definition of an index; an index is not an epitome, a thesaurus or a concordance. Its orientation must be considered in relation to the type of book and the readers for whom it is planned.

Preliminary reading or study of the book by the indexer discussed. A tentative scheme of headings may be drawn up, but the index must not be wrenched into a preconceived framework. It is necessary to work from the text. There is need for specificity and meaningless words should be avoided. A thorough knowledge of the subject is necessary, but authors themselves are generally bad indexers. The indexer must know medical terminology so that synonyms and cognate terms can be recognized. He should also be familiar with official nomenclature and with scientific and popular terms. Substantive terms are preferable to adjectival forms, but there may be some exceptions.

Subdivision and indentation discussed. Alphabet is the soul of indexing, but must not be too strictly applied. Inversions are undesirable. The indexer must not evaluate in regard to methods of treatment, etc. Consideration of blanket references and cross references. Duplicate entries should be made when necessary. Singular forms are preferable to plural. Inclusive pages should be given for extensive matter, separate pages for incidental mentions. Long strings of numbers should be avoided.

The question of separate author and subject indexes is considered. Difference noted between textbooks and monographs, symposia, etc. The correction of index proof is described. Examples of bad indexing. Errors picked up by indexer.

I have also been asked to say something about a few points which do not actually concern the technique of indexing. These are: indexing of encyclopedic works; time factor in indexing; cost in relation to use and value; adaptation of American indexes; revision of index for a new edition; and ratio of pages of index to text. I will make very brief comments on these points.

Although there are rules for indexing, these rules should be broken whenever necessary. Indexing is, like medicine itself, as much an art as a science, and it is—hard work.

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* Summarized.

TECHNIQUES OF INDEXING PERIODICALS

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Conference on Indexing, arranged by Aslib and the Society of Indexers,
London, 31st January 1961

I WANT to discuss in this paper on the indexing of technical periodicals several broad aspects of this very comprehensive subject.

Firstly, the requirements and size of index, as far as it is possible to discuss these factors in general terms.

Secondly, I want to raise some particular points that occur in indexing periodicals—points of style or the mechanics or grammar of indexing.

Then I want to consider what I regard as a most important aspect of the subject—the production of a periodical index.

Finally, I shall conclude with a brief note on cumulative indexes.

REQUIREMENTS AND SIZE OF INDEX

Broadly speaking, users of an index can be divided into two classes: those who know what they are looking for—or, to put it another way, those who know that what they are looking for does (or should) appear in the index—and those who are making a chance search for something which the subject-matter of the periodical would lead them to believe might well be found in the index.

The approach of the two classes of user might easily be different. The obvious example of the first class is a member of the editorial staff of the periodical who probably remembers the exact wording of the title. I suspect that this type of user may be responsible for the all-too-frequent practice of indexing articles by the first word of the title and sometimes *only* by the first word, irrespective of whether this word is an indexable subject-heading or not.

I suspect also that this same user—the editorial department—is the one who is keenest on several alphabetical sequences classified under various headings such as

Subjects (General)
Book Reviews
Editorials, etc.

The second type of user is at a great disadvantage with this kind of index as he may well be interested in all entries of a particular subject irrespective of whether they are contained in an editorial, a book review, or a main article. He will then be required to carry out several searches instead of one. I feel that if the index is designed chiefly for the second type of user—that is, it includes significantly indexable references only, and has a minimum of classified sequences, then the index should be efficiently useful to both types of user.

The size of an index should, theoretically, be decided by what is required to be indexed and what is not. But this question of size is often rather a headache as the tendency today is for it to become larger and larger, without necessarily any corresponding increase in the size of the issue. This is because the general tendency in editorial policy is to cram more and more material into the same number of pages. For instance, if the average article needs an absolute minimum of one author entry and two subject entries, then four long articles will need twelve entries; but eight short articles, occupying the same number of pages as the four long articles will, on the same count, need not twelve but twenty-four entries. It is easy to see from this how an index can quickly become larger and larger while the size of the periodical remains ostensibly the same.

STYLE OR THE MECHANICS AND GRAMMAR OF INDEXING

Many points of importance in this section will no doubt have been covered in the paper on book indexing, and I will therefore try to confine my remarks to those which are particularly important in periodical indexing.

Leading straight on from the previous section, quite a lot can be done to affect the size of an index by the style adopted.

Apart from the mere number of entries involved, there is also the length of each entry to be considered. Here I think it is desirable to strike a happy medium. It is quite easy to find indexes that vary from the bare one or two words, with a string of page numbers, to what can only be described as a small abstract to each entry. Both extremes should be avoided.

The first essential is a continuity of style not only from issue to issue, but also from volume to volume, although terms no longer in common usage should be replaced by their more modern counterparts from time to time. Thus, 'motor omnibus' or 'omnibus' would now normally be indexed as 'bus'. To keep the user informed of such changes the first volume or two containing a change of term should include a cross reference from the old term to the new one.

Similarly, cross references should be inserted to cover synonymous and closely related terms.

The indexing of the main subject matter of each article or paper is, of course, the main function of indexing and calls for a blend of the indexer's skill and the requirements of the publisher. If an article is entitled 'How to weld titanium', no self-respecting indexer would compile an entry under the word 'how', but, as already mentioned, there are cases when a publisher requires articles to be indexed by the first word of the title and naturally his wishes have to be complied with in this respect.

However, the obvious entries from such a title are:

Welding, titanium
Titanium, welding

Further, or deeper, indexing of an article would depend on the pre-arranged policy of the index, and on the amount of detailed description or considered importance of items mentioned within the text.

In most indexing work, to index every item or name that receives a mention is neither possible nor desirable. But it is often the case that something useful is described in considerable detail that would not be found merely by the main title entries of the article and I think it is a pity that so many periodicals restrict their subject entries to titles only.

So much for the major articles. In many cases there will be a number of other types of indexable matter, such as book reviews, letters to the editor, discussions on earlier papers, descriptions of plant, etc. The indexer will need to know exactly whether or how these items are to be dealt with and a specific style should be agreed between the indexer and the publisher or editor and then retained from issue to issue as far as possible.

One small point I would like to make on this subject which typifies the indexer's problems is the following: One periodical often describes a new motor car simply in terms of its trade name . . . 'the Austin-7 shown in the accompanying picture is now on the market. It has a number of interesting features, such as . . . etc., etc.' Often no mention of the term 'motor car' appears anywhere in the text, but this is obviously one of the chief subject headings required of such an article.

That is just a very simple illustration of the frequent need for the indexer to invent entries which do not actually appear in the text.

Notes for guidance of the user

If the index is a long and involved piece of work it is useful to include at the beginning some explanatory notes to help the reader to find his way about. These could include the use of special types for particular entries, abbreviations used in the index, the alphabetization system adopted, and so on.

Standardization

It would be very nice if a kind of universal code could be adopted to cover indexes to technical periodicals. Some attempts have, in fact, been made in this direction, but I do not believe that they are, up to now, very far reaching. There is, of course, difficulty in that the requirements and scope of various indexes differ so very widely. Also the drawing-up of a standard specification is one thing, but its universal adoption is another.

PRODUCTION OF THE INDEX: SHORTER-TERM INDEXES

Now I should like to discuss an aspect of periodical indexing not often considered by indexers: the production of the finished product.

I think our ideas on indexes and indexing are very different today from, say, twenty or so years ago. Today, largely because of the enormous increase in the volume of published material, indexes are regarded as an essential tool, and not merely as a few pages added to the back of a bound volume for the sake of prestige and appearance before it finally takes its rest on the shelves of a glass-fronted bookcase.

No, the index of today is a piece of equipment urgently awaited, and if it has any worth at all, it should enjoy a well-thumbed life on the desks of the librarian and information officer.

At this exact moment, January 1961, it is doubtful whether there are as yet many complete indexes (other than those that comprise merely a shuffled list of titles) available for weekly periodicals of later than June 1960—the weeklies usually being published in half-year volumes—or for monthly periodicals, later than December 1959, where these are published in yearly volumes. This means that there is no published index available to recent issues—the very issues in which information is most likely to be required.

Now, how can this position be improved? The first answer may well appear to be to tell everyone involved, especially the indexer and the printer, to get a move on. That method, I can assure you, has been tried, and although some success may be forthcoming, it is not usually either very drastic or very long lasting. And, in any case, even if the index were brought out the day following publication of the last issue, there would still be this time lag of up to six months or, in some cases, of one year.

Is there an alternative way of getting our indexes to recent issues on our desks more quickly? I think there is: briefly, by having shorter indexes and more of them—in other words, short-term indexes, say, every two months, so that an index to all issues published during January and February, whether monthlies or weeklies—would be available in March, and so on throughout the year. This would not, of course, involve less efficient or less complete indexing, but would spread the load evenly over the year and so avoid long delays in their availability. I should stress that the, say, two-monthly indexes would not be cumulated as the volume progressed—because as the index became larger the scheme would defeat its own object and delays would inevitably creep in again. At the end of each volume, however, a complete index could be published in the normal way.

What is more, if publishers want a really quick index produced, I think they will have to bring their ideas up to date and be prepared to use modern processes. For example, I would refer to offset-litho printing machines which, used in conjunction with modern electric typewriters, bring the actual production of the index within the province of the index compiler. Our own organization has been studying this process with special reference to indexes and we ourselves are shortly expecting to commence work on producing indexes that have previously been produced by the conventional letterpress process. A very considerable saving in production time is expected to result, partly because of the nature of the process and partly because we shall be able to arrange for the production machinery to be available exactly when it is required and we shall thus not be at the mercy of the printer who naturally prefers to do this job at his convenience rather than ours.

CUMULATIVE INDEXES

Finally, I was asked to include in this talk a brief note on some of the problems involved in producing cumulative indexes. The main problems of this type of index are, as I see it, time and money. Now I know that such indexes are being produced today, in some cases very efficiently and very promptly, but I suggest that in these cases the facilities and the financial resources available and in fact required are probably rather exceptional. Unless a publisher feels so strongly as to say 'we are going to go in for this, whatever it costs', I think such indexes are not a practical and economic feasibility in this day and age. After all, the information is already published and I am sure it is an unnecessary extravagance in the ordinary case to consider republication merely in another form.

AUTOMATION IN INDEXING

C. W. CLEVERDON
Librarian, College of Aeronautics, Cranfield; Director, Aslib Research Project

Conference on Indexing, arranged by Aslib and the Society of Indexers, London, 31st January 1961

THERE are two points to be considered under this general title, *a* the mechanization of the actual process of indexing, *b* the mechanization of the printing of indexes.

As at present conceived, indexing is an intellectual process, that is to say, we expect a person to read the document in order to assess the subject content, then to decide on what subjects are relevant to the purpose of the index, and finally to decide on the headings or notations to be used. If the intellectual content of this work can be removed and the whole task turned into a clerical operation, then there is no practical reason why the whole task could not be done on a computer (even though, as things are at present, there may be certain difficulties involved).

To turn indexing into a clerical operation, it is necessary to have basic rules which will be followed every time whatever the circumstances may be. To put it quite simply, one might read an article and count the number of times every word is used. One would beforehand have prepared a list of key words and the instruction could be given that the ten key words which occurred most frequently would be used as indexing terms. Alternatively one might say that every key word which was used more than six times could be considered as an indexing term. For a human to do this would be a tremendous task, but this operation can be quite easily carried out by a machine, such as a high-speed computer. The present practical difficulty is that the printed text has to be turned into a form which the machine can digest, which would normally be a punched card or tape. However, machines are being developed which will be able to read text, and when this position has been reached it is possible that practical attempts will be made to index by this method.

Meanwhile, a simplified method is now being used in a number of situations. Instead of the machine being given the whole article, it is presented with the title. A list of key words is also given to the machine, and the machine will note every time that any of these key words appear in the title. The key words are then sorted into alphabetical order and an ordered list of titles is printed, as discussed later.

There are those who would say that this can in no way be called indexing, and that the value of such indexing must be very much lower than that done by intelligent trained human beings. This is a comforting thought, but such small evidence as is at present available makes it appear doubtful as to whether it is entirely true. This is not to say that a human being cannot do a better job, but it certainly appears likely that the cost of employing a human being to do it is of doubtful economic justification.

The second point appears more immediately practical and also probably is the aspect which will have the greatest impact in the future. This is the use of machines for preparing and printing out indexes after the indexing has been done. Probably the best known example of this is the index prepared by *Chemical Abstracts* which goes under the title Key-Words-in-Context, commonly known as KWIC. In this case the machine has carried out the process described earlier of finding all the key words in the titles, it has then sorted the whole lot into an alphabetical arrangement and has prepared the master copy for printing. The great merit of this particular method as used in *Chemical Titles* is that it enables information concerning new articles to be made available very much more quickly than if there were the inevitable delays of human abstracting and indexing. There is, however, no reason why this machine method should not be used with conventional indexing. As it might apply to the indexing of periodicals, it could hardly be considered economically justified for a single volume or even for a single journal. If, however, there was agreement on some basic form of indexing, all such indexing, together with the necessary references, would be fed into the machine, such references coming not just from one journal but from a whole collection. Every month a list could be published, or alternatively it would be possible to prepare lists of special subject interests. These could be printed and distributed and could be kept up to date by three-monthly, six-monthly and annual cumulations.

Many ventures in co-operative indexing of scientific and technical journals have failed due to the cost of the clerical operations, but it appears possible that the use of computers and high-speed print-out machines will overcome the economic problems.

DISCUSSION

Discussion centred largely on who should be the indexer, and in what form indexes should be constructed. Some delegates felt that the author was not the best indexer of his own work as he did not have the right approach to the problem and in many cases did not understand the technique of indexing. It was suggested that authors should supply lists of concepts for the guidance of the indexers, or that authors should index and publishers edit the indexes to a consistent standard.

Mr Hinsley said that specialist research workers often worked in such closed circuits that they were, in fact, the only persons capable of indexing their own work.

Mr Parker said that, at the Cambridge University Press, the indexes of scientific books were dealt with almost entirely by one sub-editor who was himself a competent indexer. This practice should ensure a consistent standard throughout the varying forms of indexes required for different works.

Dissussing the form of index, most delegates deplored lack of subject indexes, titles only being considered insufficient. Different opinions were expressed about the form that subject indexes should take and whether or not they should be combined with author indexes or printed separately. Block indexing with many subheadings and indentations was criticized as inadequate for users who were trained to look for a specific subject, and it was felt that more use should be made of alphabetical indexing by adjective in such cases as *Heart* diseases, *Chronic* bronchitis.

A plea was made for separate indexes for author, subject, and numerical patents, also for trade names to be included in abstract and journal indexes.

Problems of indexing caused by changes in methods of publication were discussed, particularly where material was published in loose-leaf form, by instalments, or as 'separates', and it was suggested that these could be overcome by use of decimal classification.

It was suggested that, particularly in the case of reference books where much information was contained in a large type area per page, folio numbers were inadequate to locate references. It would be helpful if an alphabetical scale giving subdivisions were printed on the jacket flap or a transparent grid supplied to define the locations.

It was pointed out that *The Times* index was at present six months in arrears, but that the lack of indexes to newspapers mentioned by Mr Hinsley was more apparent than real. Most newspapers, in fact, maintained very detailed indexes and many also had efficient telephone information services. The advantages to indexers of working from punched-card systems and feature cards, tape, or paper (gummed or ungummed) were advocated by various speakers, and the problems caused by shortage of typists were also mentioned.

Mr Bishop pointed out that, though there were obvious advantages in mechanization, machines could not do the whole job of the indexer. Properly done, the alphabetical subject index was still the simplest and quickest method, but it was necessary in subject indexing to start with the *entity* and then supply subheadings for *aspects,* with other correlations to follow.

Mr R. C. Collison (Society of Indexers) said that the Society intended to run a short course on general indexing, but indexing of scientific and technical works presented different problems and he suggested that Aslib should consider publishing a manual on scientific and technical indexing and should, perhaps, organize a short course on the subject.

SUMMING UP AND CONCLUSIONS

L. E. J. HELYAR
Information Officer, Engineering

THE general current of feeling of the meeting as reflected both in the papers and in the discussion is that the standard of indexing is not nearly adequate. This feeling has been shown both in direct comments, and by implication in some pleas for minor improvements that could only have been put forward in a world of very imperfect indexes.

In summing up the subject matter of this conference, there are three parts of the field to consider. Firstly, what is required of the index. Secondly, the making of the index. And thirdly, the printing and publication of the index.

There are two user approaches, as Mr Jones has suggested—retrieval, when one knows the material exists somewhere in the publication, and discovery, when one merely hopes to find something on a given subject. Only too often, it would appear, it is the retrieval aspect that is considered first—one hopes that there are not too many of those publishers who apparently design indexes to periodicals solely for the benefit of the editorial staff. I don't think we can do more than deplore the existence of such indexes organized in multiple sequences, and those with titles listed only under the first word, regardless of significance. What we do need, I would suggest, is to know more about index users—what they want, and how they use indexes.

Although obviously reference books in the strictest and most limited sense must indeed have effective indexes, we should not lose sight of the fact that almost any serious work may be used as a reference book by people who are not accustomed to that particular book, or even to the subject. While keeping an economic sense of perspective, one should, I think, keep in mind the needs of these marginal readers.

I am very interested to hear from Mr Parker that cumulative indexes can sometimes be both valuable (and no one would deny that) and an economic proposition. However, if one is concerned with fast evolving and changing techniques rather than with a systematized science, I think that one must agree with Mr Jones that the cumulative index is possibly something of an extravagance.

In technical journals the currency of material is short, and therefore the more quickly an index can be made available the greater the use that will be made of it. The suggestion that journal indexes be produced covering much shorter periods is a workable answer to an ever-present lack of current coverage. Whether it is also an economic proposition is for publishers to consider.

At the other end of the time scale, if one were to produce a cumulative index to, say, ten years of a technical journal, one might find that as much as 90 per cent of the index represented material that was no longer of current value.

Just how much should go into an index is a difficult question which is solved pragmatically on a cost-to-use basis. Some of the worst indexes one sees, however, could be greatly improved without noticeably increasing their space.

Standardization of indexing is something which will be very difficult of achievement since there is such a variety of demands and purposes. We must hope that the present British Standards Institution committee deliberating on this subject will take into account the differing needs of the various kinds of publication and subject field. Whether or not adequate standards for indexing can be formulated, it would certainly be useful if we could somehow evaluate and draw up certain minimum standards of efficiency in the indexer. One is happy to hear of the training plans of the Society of Indexers, and the suggestion put forward at this conference that a short course in technical indexing be organized by Aslib.

It is at this stage of indexing—when we attempt to balance cost against use—that automation is to be considered. Mr Cleverdon does not deny that a human indexer can do a better job than any automatic method at present envisaged, but has pointed out that it will become increasingly difficult to justify economically the cost of using direct human labour for both the intellectual and the mechanical part of indexing. Perhaps the future of technical indexing of periodicals lies with something like the KWIC system. Given human indexing, then automatic sorting and print-out could give really tremendous savings.

As to the making of the index, Mr Bishop and Mr Jones have given us very enlightening accounts of the techniques and style. Of indexers, only one person has cared to make an outright statement on the choice between subject knowledge and indexing experience. There is little doubt that for a good technical index one needs at least some knowledge of the subject, and that granted adequate indexing experience the better the subject knowledge the more valuable the index is likely to be. The author, as has been suggested, is scarcely ever the right man to produce the index.

New methods of printing have much to offer in speeding the production of indexes and we must applaud their arrival—but we must remember, I'm afraid, that one factor will sometimes prevent their use—the desire to maintain an impressive tradition of publication in real type.

We have had a very interesting conference, a very valuable conference in which we have been able to see some of the indexing problems that the other person meets. But we have been talking very much to the converted. Consequently we have reached a great measure of unanimity: technical indexes are just not good enough.

However, general dissatisfaction is not enough—what we must achieve is some sort of action, and we should not delude ourselves into thinking that anyone but the publisher can take the necessary action.

May I suggest that what we need to give substance to our discussions at this conference is that representatives of Aslib, the Society of Indexers, the Publishers' Association, and the British Standards Institution be assembled as a working party to consider how to bring the demands of the user and the capabilities of the publisher much closer together.

Letters to the Editor

The Editor,
Aslib Proceedings.

Madam,

Though not an inveterate writer of letters to editors, I am moved to do so by Mr A. H. Holloway's opinion in your January issue (p. 16) that unrelieved abstracting is a monotonous and depressing task in information work.

As a one-time Information Officer I always found technical abstracting a pleasurable and mentally rewarding occupation. It was one to which I always turned with relief from other information-department duties (except perhaps the equally mentally stimulating compilation of reviews of the literature), and is one which I have since continued as an instructive and constructive hobby. Some of its rewards are the widening of personal technical knowledge by the necessarily close reading which is involved, or should be involved, and the first-rate exercise it can afford in the achievement of crispness in technical writing. The latter advantage has been pointed out at least twice under Aslib auspices (see *Aslib Proceedings,* 1960, vol. 12, no. 9, p. 314), and it is a theme upon which I would like to expand but forbear to do so in the interests of your valuable space. The views of other labourers in the information vineyard (or scrap yard) may, however, be interesting.

Yours, etc.,
JAMES REVIE,
50 Howburn Road,
Thurso,
Caithness.

4th February 1961.

Dear Madam,

Mr Holloway's paper on 'The Price of Co-operation' contains a section on translation pools, but it mentions only one pool, the SLA Translations Center. This collects translations made by industrial firms and others, and records translations which it does not hold, but as far as I know it does not co-ordinate the translating efforts of the firms, and does not commission translations.

Mr Holloway might have mentioned another co-operative translation pool, the British Iron and Steel Industry Translation Service, which does both of these things, and in addition offers a financial contribution to the expenses of those who contribute translations. This was described in *Aslib Proceedings,* vol. 12, no. 4, April 1960, pp. 136–43. It has greatly increased the number of translations on iron and steel manufacture and related subjects, and made them available at lower prices.

The Iron and Steel Institute also runs an index card service providing 5 × 3 in. cards, classified by UDC, for all the abstracts printed in the *Journal of The Iron and Steel Institute.* This service had only been operating for a few months when

Mr Holloway delivered his paper, but is now entering its second year, having issued over 11,000 abstracts in 1960, and the subscriptions from Europe, Asia and South Africa, as well as this country and the USA, show that the service is meeting a need of the steel industry.

Yours truly,
MARTIN WRIGHT,
for Secretary BISI Translation Service,
4 Grosvenor Gardens,
London, S.W.1.

2nd March 1961.

Dear Sir,

Mr C. S. V. Salt states in his letter (December issue of *Aslib Proceedings*) that he finds it 'hard to believe that it is possible (let alone practicable) to count each word in the translation as a matter of normal routine. To avoid this tedious exercise, . . .' and so on.

We do not regard the counting of the words as a tedious exercise. We count every word in our translations (or in the corresponding originals). We estimate the cost of this operation as about 1 per cent of the cost of the translation.

Mr Salt also states that '. . . in any case, charges are normally made to the nearest half-folio'. We charge for every word, according to the exact wordage (except for translations of less than 100 words, for which a minimum charge is applicable). The rate is quoted per 1,000 words, and the charge is worked out in proportion. The cost of working out the charge and making out the invoice comes to about 1*s* per invoice.

Yours faithfully,
SMUTS TECHNICAL SERVICES,
Technical and scientific translators,
12 Thorndene Avenue,
London, N.11.

14th February 1961.

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TRANSLATIONS/interpreting into and from Dutch by specialist with highest credentials. Speller-Kuijpers, 5 Stratton Close, Sutton Lane, Hounslow, Middlesex. Hounslow 6954.

TRANSLATIONS, TECHNICAL, SCIENTIFIC, all languages, by specialists with sound technical and scientific qualifications. J. Smuts, BSC(ENG.), FIL, 12 Thorndene Avenue, London, N11. Tel. Stamford Hill 8564.

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BRITISH CELLOPHANE LIMITED. ASSISTANT LIBRARIAN (female), age 20–30, required for technical library attached to Research and Development Division. Previous technical experience not necessary but preference will be given to candidates having part of the Library Association Registration examination; typing ability an advantage. The library service is now being expanded and planning is in progress for new premises now being built. Five-day week. Apply to Personnel Officer, British Cellophane Limited, Bridgwater, Somerset.

CLEAVER-HUME PRESS need for mainly technical work: (*a*) Manuscript sub-editor; (*b*) Young woman assistant to Production Manager. Full details to 31 Wright's Lane, Kensington, London, W8.

DSIR, HQ, London, requires EXPERIMENTAL OFFICER/ASSISTANT E.O. in scientific library. Duties include assisting with trial projects for announcement of new report material received from overseas and home sources. Science degree or equivalent, facility in abstracting and/or critical technical writing, and good working knowledge of German or French expected. Salary: (men) E.O. £1,147–£1,396, A.E.O. £700 (age 22)–£1,038. Forms from Ministry of Labour, Technical and Scientific Register (K), 26 King Street, London, SW1, quoting reference F.135/1A.

INTERNATIONAL FEDERATION FOR DOCUMENTATION (FID) seeks an ASSISTANT to Head of the Department of Universal Decimal Classification (UDC). Qualifications: *a*, age 23–30, university degree in law, economics, or social science, and interest in classification problems, or age 25–35 GCE and familiarity with UDC; *b*, working knowledge of two of the following languages —French, German, Spanish, Russian. Residence will normally be in The Hague, with short visits to other places in Western Europe. Applications to FID, 7 Hofweg, The Hague, Netherlands.

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JUNIOR CLERK/TYPIST (15–17) required for Technical Library, COATES, BROS. & CO., Easton Street, Rosebery Avenue, London, WC1. Preferably of GCE standard or equivalent in English. Five-day week, staff canteen. Please telephone Miss Moody for appointment (Terminus 2810).

RHOANGLO MINE SERVICES LTD, Kitwe, Northern Rhodesia. A member company of the group controlled by the Anglo American Corporation of South Africa Limited. Applications are invited for the post of ASSISTANT LIBRARIAN in the Central Technical Library Division of Rhoanglo Mine Services Limited. This company provides research, development, and technical services to the associated companies of the Group in Rhodesia who are primarily large-scale producers of copper, cobalt, lead, and zinc. *Duties:* The Central Technical Library is under the direction of the Chief Librarian and provides technical information services and a technical library service to the Research and Development and Instrumentation Divisions, and the Geological Department, of Rhoanglo Mine Services Limited, and to the associated companies and head office consulting staff. The assistant librarian, who must have a scientific and/or technical background, would be required to assist in the abstracting of technical literature and to assist in dealing with technical inquiries and the preparation of literature surveys and reports in the fields of chemistry, geology, mining, extraction metallurgy including mineral dressing, and allied subjects including various aspects of engineering, instrumentation, and electronics. He would also be required to classify literature by the Universal Decimal Classification and to assist in the general routine of a technical library. *Salary, etc:* The commencing basic salary will be determined by qualifications and experience but will not be less than £1,131 per annum plus a bonus, varying with the prosperity of the industry, which is at present approximately 40 per cent of basic salary, and a variable cost-of-living allowance which is at present about £60 per annum. Fully serviced, modern housing, complete with basic furniture, refrigerator, etc., is provided at a nominal rental. There are also generous pension, life assurance, and medical benefits. Leave varies between 48 and 51 days per annum, depending on salary, and may be accumulated for up to three years. Air or sea passage for the successful candidate would be paid by the company and assistance on a loan basis may be provided towards other importation expenses. Income tax rates are low. *General information:* Kitwe is situated on the Central African plateau at an altitude of 4,100 feet above sea level and consequently enjoys an equable, healthy climate of dry cool winters with a rainy season moderating summer temperatures. Ample all-the-year-round facilities for all the usual sports are available. Two modern cinemas offer daily programmes. Numerous recreational societies are active in the town, which has a population of about 12,000 Europeans. A television service is expected to commence in a few months. Education at the Federal Government schools is free. Several modern and well-equipped primary schools cater for the younger children. The boys' high and girls' high schools prepare pupils for the usual school-leaving certificates and university entrance examinations. Apply by air mail to The Secretaries, P.O. Box 172, Kitwe, Northern Rhodesia, stating age, marital status, qualifications, experience record, availability, and the names of two referees, and enclosing a recent photograph.

TECHNICAL INFORMATION SERVICE. Aslib has two vacancies for literature searchers to handle wide range of technical inquiries. First, salary up to £1,000, requires experience of this type of work and involves supervision of small team of searchers. Second, salary up to £700, might suit young science graduate attracted by work with technical literature. Apply Director, Aslib, 3 Belgrave Square, London SW1.

TRANSLATORS. Laporte Industries Ltd have the following vacancies in their Group Documentation Department at Luton, Beds. (1) *A Senior Translator.* The successful applicant will be required to take charge of the Translation Service. This will include translating a wide range of scientific, technical, commercial and general material into English, supervising the work of a staff of inside and outside translators and co-operating with other organizations in the translation field. An honours degree in German or Fellowship of the Institute of Linguists (Ger.) is essential, together with a sound knowledge of at least three other languages, preferably Russian, French and Spanish. A degree in science with proved ability in the above languages would be considered. Age limit 23 to 28 years. (2) *A Translator/Abstractor.* Applicants for this post should be able to translate technical German and Russian and/or French fluently. They should be prepared to translate foreign scientific papers and patents, prepare abstracts and reviews and carry out literature searches of foreign material. A degree in chemistry or an equivalent qualification is essential. Age limit 22 to 27 years. Applications giving details of age, qualifications and experience should be addressed to the Group Personnel Manager, Laporte Industries Limited, Hanover House, 14 Hanover Square, London W1.

WE are setting up TECHNICAL LIBRARIES in architects' offices throughout the country and require enthusiastic young people with personality prepared to work on their own. Minimum age 22. Car supplied. London, Birmingham, Liverpool, Bristol, Yorkshire. Apply B.T.D. Limited, 131 High Street, Croydon, Surrey. Croydon 5154.

Wanted

H. T. S. BRITTON: *Conductometric analysis,* 1934, required. Librarian, Benzole Producers Ltd, Otterspool Way, Watford By-pass, Watford, Herts.

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Applications are invited for the position of LIBRARIAN (male) to take charge of a new technical library. The person engaged will be required to build up a reference library, deal with the circulation of periodicals, abstracting, and the preparation of a weekly bulletin, indexing of information, and to prepare bibliographies.

Previous experience in technical library work is desirable.

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Applications giving details of age, qualifications and experience should be addressed to:

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Applications, stating academic qualifications and career to date, should be addressed to:

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An abstractor is wanted for the comprehensive technical library maintained by I.C.I. Nobel Division at Stevenston, Ayrshire. This library is part of the Division's large Research and Development department and it provides an essential service.

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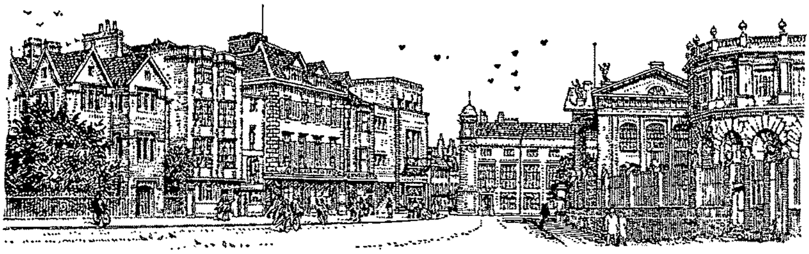

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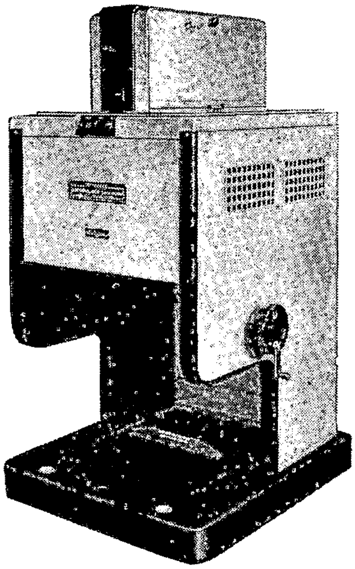

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ASLIB PROCEEDINGS

incorporating Aslib Information

CALCUTTA UNIVERSITY

Volume 13 May 1961 Number 5

ASLIB CALENDAR

May

MON.29 – FRI.31. Junior introductory course to information work.

June

FRI.2. Engineering Group annual general meeting at Aslib.
WED.7. Annual General Meeting.
FRI.23. Technical Translation Group visit to Birkbeck College.

July

SAT.1. Fuel and Power Group visit to UKAEA, Harwell.
THUR.13 – SUN.16. Aeronautical Group annual conference at Cranfield.
FRI.21 – MON.24. Northern and Midlands Branches conference at the University College of North Staffordshire.

September

* WED.6 – SAT.16. FID conference at Caxton Hall, London, SW1.
THUR.28 – FRI.29. Scottish Branch information course in Glasgow.

* See FID programme for sessions open to Aslib members.

Marriage

Members will be pleased to know of the marriage on 29th April of Miss D. M. Bremner, Liaison Officer at Aslib, to Mr Robert L. Sauvée, A.M.I.MECH.E., Manager, Estimating Department, Sovex Ltd. We are glad to report that Mrs Sauvée means to carry on her work at Aslib and we wish her and her husband every happiness in the future.

Junior Introductory Course to Information Work

A course designed to meet the needs of persons who have recently entered special library and information work in junior posts will be held at Aslib from 29th to 31st May. Lectures will describe routines and practices suitable for use in special libraries and information departments of various kinds, explain the reasons for their application and the circumstances in which they are appropriate. There will also be a general introduction to the functions of the information department and students will be given guidance on further development through study and professional reading. The lectures will be given by the Education Officer, Mr Jack Bird. Students will be introduced to the work of the Aslib Library and Information Department and visits to a number of other libraries in the London area have been arranged.

The fee for the course will be 5 gns. Further details and application forms can be obtained from Aslib.

Scottish Branch

Mr A. Liddle, Librarian, Babcock & Wilcox Ltd, has been elected Chairman of the Branch for the year 1961–2. This is Mr Liddle's second term of office as Chairman. Dr M. F. C. Paige, Librarian, Research Department, ICI Nobel Division, Stevenston, Ayrshire, has been elected Vice-Chairman.

A two-day information course for young librarians will be held on Thursday and Friday 28th and 29th September, at the Royal College of Science and Technology, Glasgow. Lectures on general library material, the importance of periodical literature, information retrieval methods, service to the user—including assistance to be obtained from external libraries—and professional literature will be given by members of the Branch. Further details will be circulated to Aslib members as soon as they are available.

It is hoped to arrange a visit to the Marine Biological Station at Millport, Isle of Cumbrae, for the Spring outing of the Branch, at the end of this month.

Aeronautical Group

The annual conference to be held from Thursday 13th to Sunday 16th July at the College of Aeronautics, Cranfield, will open with a showing on Thursday evening of the Ministry of Aviation documentary film *The sky is our business*. The programme for the following three days includes papers by the following speakers: Mr C. W. Cleverdon, Librarian, College of Aeronautics, on 'Future developments of the Aslib Cranfield project on indexing'; Dr A. D. Booth, Department of Numerical Automation, Birkbeck College, on 'Linguistic analysis and statistics by computing machine'; Mr J. Kirk, De Havilland Aircraft Co. Ltd, on 'Some trends in aeronautical research'; Mr J. F. Stearns, Deputy Director, Armed Services Technical Information Agency, Washington, on 'Automation at ASTIA'; Mr W. K. Lowry, Manager, Technical Information Libraries, Bell Telephone Laboratories, New Jersey, on 'Systems engineering and information handling'; Mr Frank Smith, Librarian, Royal Aeronautical Society on 'The eleven plus: an introspective retrospect of the Aeronautical Group'; Mr H. Vessey, Assistant Director, Technical Information and Library Services, Ministry of Aviation, on 'Modern documentation—the need for mechanization'; and Mr T. Aitchison, Librarian, English Electric (Aviation) Ltd, Luton, on 'Public relations and publicity in special libraries'. Visits have been arranged to the Aircraft Research Association, Bedford; the laboratories of the College of Aeronautics; and Woburn Abbey.

Engineering Group

The Annual General Meeting will be held at 3 p.m. on Friday 2nd June at Aslib. The meeting will be preceded by luncheon at the Anglo-Belgian Club and followed by a talk on the work of the Aslib Information Department by Mr Leo Goldstone, Information Officer.

Fuel and Power Group

The Annual General Meeting was held on 23rd March at Aslib. Some twenty members were welcomed by the Chairman, Mr F. Hickman, who announced that group members now numbered eighty-six. Officers for the year 1961–2 were elected as follows: Chairman, Mr F. Hickman; Hon. Treasurer, Mr H. C. Claxton; Hon. Secretary, Miss G. E. Hargreaves, Information Division, The British Engineers' Association, 32 Victoria Street, London, SW1. The meeting was followed by a sherry party and a spirited and entertaining talk given by Miss Gossett.

Because many of her audience would be visiting the Harwell library in the near future and she would then be giving them an outline of its development, Miss Gosset devoted most of her time to a description of her early years at the Science Museum Library. There, without previous training in librarianship, she was plunged into the routines of cataloguing and indexing, and into the mysteries of the UDC. Miss Gosset paid tribute to the wonderful qualities of far-sightedness and tenacity to an ideal which were shown by the Keeper of the Library, Dr S. C. Bradford, who was foremost in the promotion of international collaboration in the field of documentation and championed the use of the UDC for this purpose. He virtually introduced the UDC into Great Britain and, through the BSIB and the IIB (now the FID), organized the 1929 and 1938 international conferences on documentation. Moreover, in collaboration with his deputy and successor, the late Mr Lancaster-Jones, he developed in the Science Museum Library a service to science and industry which blazoned the way for the vaster schemes of today. Miss Gosset concluded her talk by reference to some lighter incidents at Harwell in the early stages of the history of the library there.

Index to Theses 1958–59

Volume 9 of *Index to Theses accepted for higher degrees in the universities of Great Britain and Ireland,* covering the academic year 1958–9, is now available from Aslib, price 21*s* to members, 25*s* to non-members. Copies have already been distributed to those who have placed standing orders. The new volume contains titles of more than 3,100 theses, arranged by subject classification, with author and subject indexes as in previous years. The volume covering 1959–60 is in preparation and will be published later in the year.

Aslib Cranfield Research Project

Mr C. W. Cleverdon, Director of Aslib Cranfield Research Project on the Comparative Efficiency of Indexing Systems, visited the United States in February. He presented a series of papers on the project at a seminar arranged by the National Science Foundation in Washington on 14th February and attended by about 200 people. He also presented papers at meetings arranged by the Institute of Patent Classifiers in Washington and Western Reserve University in Cleveland.

Interlibrary Co-operation

A working party has been set up by the Ministry of Education for the purpose of studying the implications of the section of the Roberts Report* concerning interlibrary co-operation. Members of the working party include Mr S. P. L. Filon, an elected member of Aslib Council, and Mr D. T. Richnell, Honorary Secretary of Aslib.

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* Ministry of Education Committee on the Structure of the Public Library Service in England and Wales. Report. HMSO, 1959.

World List of Abbreviations

A new edition of *World list of abbreviations* is being prepared by the Leonard Hill Technical Group. It is proposed to include in this volume scientific, commercial, charitable, sporting, educational, and religious organizations. Any such organizations that are habitually known by their initial letters are asked to communicate with the Librarian, Leonard Hill Technical Group, Leonard Hill House, Eden Street, London NW1, in order to ensure inclusion in the new edition of the list.

Research Essay Competition

Research is again sponsoring the Waverley Gold Medal essay competition which has already been held in eight successive years. The competition is designed to encourage scientists and engineers to express their views and translate their work into essays that will be readily understood by other scientists, directors of industrial firms, and others interested in science and technology. The first prize, Waverley Gold Medal and £100, a second prize and a special prize for entrants under 30, each of £50, will be awarded for the best essays of about 3,000 words describing a new project or practical development in pure or applied science, giving an outline of the scientific background, the experimental basis, and the potential or actual application of the ideas to industry, or their importance to society. Entry forms can be obtained from the Editor, *Research,* 88 Kingsway, London, WC2.

New Secretary for NIDER

Mr W. E. Clason, formerly Head of the Translating, Documentation, and Library Department of Philips Gloeilampenfabrieken, Eindhoven, has been elected Honorary Secretary of the Netherlands Institute for Documentation and Filing (NIDER) in succession to Dr A. W. J. Mayer, who has recently resigned. Mr Clason has been a member of Aslib for many years.

Library Association of Australia

'Standards for special libraries' will be the subject of a symposium to be held in August by the Special Libraries Section of the Library Association of Australia during the biennial conference of the Association which will take place in Melbourne.

Special Libraries Association

The Fifty-second Annual Convention of the Special Libraries Association will be held in San Francisco from 28th May to 1st June. Subjects for discussion include abstracting services, technical translations, library equipment and its application, information retrieval systems for small and medium-sized libraries, relations with management, and sources of specialized information. There will be exhibitions of library equipment, publications, and services. The convention will be followed by a Mid-Pacific SLA Conference in Hawaii from 2nd to 8th June.

Law Librarians' Institute

The American Association of Law Libraries will hold its fifty-fourth annual meeting in Boston, Massachusetts, from 19th to 23rd June. The theme for the meeting is 'The Literature of the Law—techniques of access' and the programme includes sessions on information retrieval, problems of access and library use, and present-day law book publishing.

American Copyright Law Revision

A recent Library of Congress publication contains Studies 26, 27, and 28 of a series prepared for the Copyright Office of Library of Congress under a programme for the re-examination of the United States copyright law. These studies cover: 26, unauthorized duplication of sound recordings; 27, copyright in architectural works; and 28, copyright in choreographic works. *Copyright law revision*; Studies 26–28 is available from the Superintendent of Documents, Government Printing Office, Washington 25, DC, USA, price 35 cents.

National Diet Library of Japan

The National Diet Library, Tokyo, will move into a new building during the summer. The Director, Division for Inter-library Services, has announced that loan, photocopying, and reference services will consequently be suspended from 15th May. Work will be resumed in October.

THE LECTURE THEATRE OF THE ROYAL AERONAUTICAL SOCIETY

ANTHONY J. BARRETT
Head of Technical Department, Royal Aeronautical Society

Aslib Winter Meeting, London, 22nd February 1961

THE lecture is probably the most inefficient means of disseminating information; I hope, however, that I shall not prove the truth of this too rigorously in the course of what follows.

Perhaps I should preface my remarks by noting, as is usual on these occasions, that I am giving my own views, and the Council and Secretary of the Society are not necessarily implicated. Indeed, my first remark concerning the inefficiency of the lecture as a means of disseminating information would hardly be expected from a Council which has so recently expended a large part of the Society's funds on this theatre. To a governing body reasons of prestige and convenience are sufficient and the stated purpose needs no elaboration. Beyond this, however, there are sound practical reasons why a theatre of this type comes to be built, and I would like to give you some indication of these reasons and present the Society's theatre as a logical outcome.

My presentation must necessarily be from a layman's point of view, for I am far from expert in matters of architecture, optics, electro-acoustics, or in any of the other specializations involved.

Sooner or later one must face the economics of the professional society lecture, and in particular those relating to daytime lectures, such as this Society's all-day discussions involving perhaps as many as four hundred people. These economics are quite staggering. If one adds together the salaries, expenses, and overheads related to their employment by the companies which they may be representing, the total is about £700 per hour. In other words, quite apart from the running costs of the theatre, which are negligible by comparison, an all-day discussion at this Society is costing somewhat in the order of £5,000. It is hardly surprising, therefore, that I say that the professional lecture is a most inefficient means of disseminating information, for one is often hard-pressed to explain the results of such an expenditure. Despite this, however, the number of lectures taking place and organized by this and many other societies continues to increase.

The number of this Society's lecture meetings has increased from thirty-three in the 1957/58 session to fifty-eight in the 1960/61 period. I would like to suggest that this trend is not altogether unrelated to the enormous problems now faced in the dissemination of information, for it must be admitted that the lecture does provide a means of transmitting some sort of information reasonably quickly and does provide an opportunity to those attending the lecture to extract during the discussion the information they really require. Even so, the lecture does not provide of itself a permanent source of reference or the opportunity to re-read difficult analyses or even, in general, the possibility to transmit other than qualitative data. As a result of these and other influences, a society such as ours finds itself in the position of needing to use what I consider an expensive, though ineffective, tool, and under these conditions the best that one can hope to do is to provide an environment in which the best possible use will be made of it.

To be really successful a lecture must rely, to a very considerable extent, upon an element of theatre. As in the theatrical performance, the difference between the true professional and the amateur is very marked. Though, as sometimes occurs in the world of the stage, a born genius or 'natural' appears from time to time, lecturing is mainly a matter of experience and can generally be related to the frequency with which the speaker has been asked to do a similar job previously.

Now, I have no data on the frequency distribution for lecturers. The basic information does, of course, exist, but unless one has some particular end in view, a full-scale analysis of it would probably not be justified. I do, however, have frequency distributions of sources producing literature on a particular topic, and I suspect the two are closely related. As this is a meeting of persons concerned with the literature of science and technology, perhaps I may be allowed to use these figures to make my next point. They tell us, for example, that in the particular survey upon which they are based, seventy-odd sources issued at least one report on this topic, that three sources issued at least ten reports, and that there was one issuing as many as twenty in the same period. I have no doubt that you are all familiar with this type of analysis, or something very similar. Let us presume that the frequency distribution of lecturers is in much the same pattern. From such a distribution we may estimate the growth of the total of all the lectures which will be given as a function of the experience of the lecturer.

This assumption leads to the conclusion that although there may be one speaker who appears as many as twenty times in a certain period, 50 per cent of the total lectures will be given by speakers who appear less than four times and over 20 per cent by speakers who appear but once. In other words, a large part of the lecturing done in a professional society theatre will be done by people who do not frequently give lectures. The amateur, the occasional user, is the one for whom we have to cater. Of course this is the same problem as in all information transmission. A recent article by Simpson and Murdoch of Battelle* drew attention to this very point. They noted that it was the occasional user of information services who believes he has an information problem, and of course, because he believes it, he has it.

It is essential for the amateur lecturer to be given confidence; one must provide him with apparatus upon which he knows he can rely; he must be confident that he can be heard no matter how poor his voice. He must not be embarrassed by a lot of attachments in the way of throat and chest microphones and, as he may not have theatrical experience, he must be provided, as far as is possible, with a sense that the audience is on his side. Nothing can be more alarming to the amateur lecturer than to feel that he is delivering a lecture from a brightly illuminated cave outside which there lurks an unseen enemy in the shape of an audience.

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* G. S. SIMPSON *and* J. W. MURDOCH. Qualitative approach to scientific information problems. *Battelle Technical Review*, vol. 9, no. 11, Nov. 1960. pp. 3-7.

When it was first designed, this theatre had just such a regrettable feature. The stage was defined by a very heavy proscenium arch, all the business on the stage took place behind it and there was an inflexible, if invisible, curtain between the stage party and the audience. This was overcome by bringing the lecturer well forward of the proscenium sides so that the amateur lecturer is given some sense of unity, and perhaps some comfort, by being brought out into the audience. (*See* p. 131.)

The next essential in catering for the type of person who makes up the majority of lecturers to professional societies is to be able to assure him that the slides that he has presented stand a reasonable chance of being seen by his audience, and that he will not have to depart from his script because his audience cannot see all the detail that is necessary. An overall estimation of the size of screen required can be made from the British Standard Code of Practice, CP412, which will tell you that the screen width should be about one-sixth of the distance between the screen and the farthest seat, and certainly not less than about one-eighth of that distance. Unfortunately, requirements other than those of projection (for example the maximum building height permitted) meant that this theatre could not have a rising floor and that the picture had to be thrown as high as possible in order that those in the rear seats could have a reasonable view. Even so we were able to satisfy recommendations of the Code by arranging for a picture that is never less than 8 ft. deep, and in the case of cine, 35 mm. slides and standard American size slides, this means that our picture width is over one-fifth of the distance to the farthest seats.

Before we built this theatre, we always told lecturers that the lettering on their slides should not be less than one-twentieth of the height of the slide, otherwise those in the rear would be unlikely to read it. We are now able to advise our lecturers that lettering one-thirtieth the depth of the slide will be legible to all of their audience. It is, of course, on a slide projection that the legibility is of prime importance and it is not just a question of lettering being sufficiently large; proper illumination, to which I will come later, and definition are probably almost as important. Fuzziness in the picture may make any size of lettering difficult to read. The definition provided by a projector is, of course, dependent upon the quality of lenses, though it can be enhanced by using smaller aperture lenses with a high degree of illumination from the lamphouse of the projector. Although this may not be an optically efficient process, it is often necessary if the first cost of the projector is to be kept low, or at least reasonable, particularly with long focal-length lenses such as those which have to be used in a theatre of this size.

To give you some idea of the way in which these costs increase, one series of lenses for a particular purpose in which we were interested cost about £18 for an 8-in. lens, £63 for a 16-in. lens, just under £240 for a 26-in. lens, and we were interested in the next one, which they didn't make! It would probably have meant a special grinding and the cost would have been beyond our means. We have therefore relied upon high quality, but standard, lenses with a high intensity source of illumination, in both the cine and slide projectors installed in our projection room.

The standard of definition which we have achieved I feel to be remarkably high, even for a professional lecture theatre. It is, of course, most required on three-and-a-quarter square glass slides which are those usually employed for the presentation of charts and diagrams. We have also achieved a high degree of definition across the picture in the case of 35 mm. slides, which at the moment are generally employed for colour and pictorial work. The definition that we have achieved, together with a very high intensity of illumination, is very satisfying and we have not seen this combination elsewhere.

Let us now pass to illumination; British Standards 1404 and 2954 give guidance to what this should be. The reflected luminance at the centre of the screen should be not less than eight foot lamberts* and not more than sixteen. Below the lower intensity, films of average density produce a poorly lit picture, and above sixteen foot lamberts flicker and grain can become objectionable. Now, with a screen area such as we have of 84 sq. ft., on cine we need to provide between 900 and 1,700 lumens if the requirements of the Standards are to be met. There are, of course, a great number of very fine tungsten projectors available, but as these provide only some 300 lumens they are generally not suitable for screens greater than about 4 ft. 6 in. in depth. Indeed, this apparatus is generally designed to be transportable, and used in small

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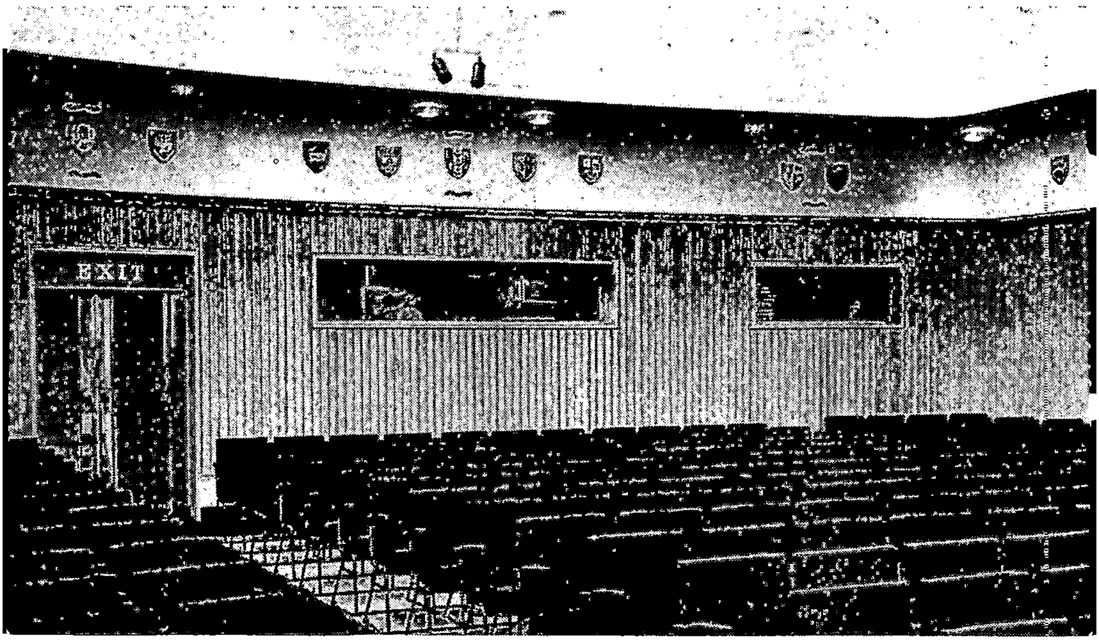
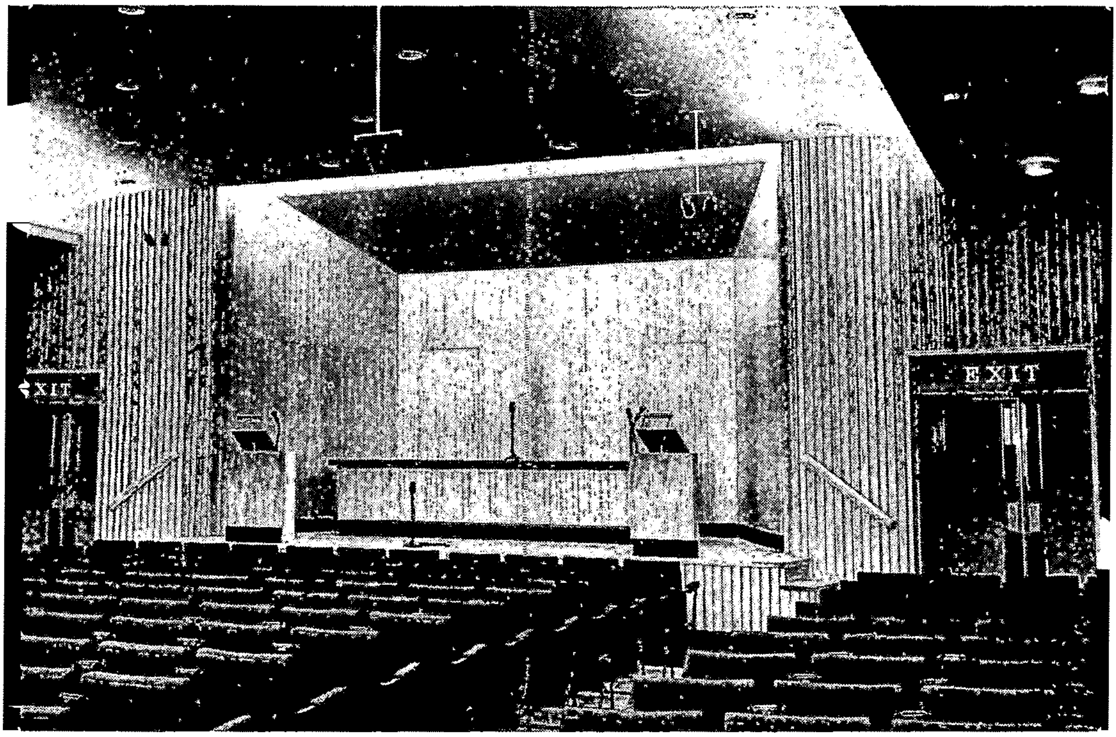
* Lumen. Light flux emitted in unit solid angle by a point source of one candela.
Ft. Lambert. Luminance of a diffuser emitting one lumen/sq. ft.

The back of the auditorium showing projection window and translators' window (right)





classrooms where the screen is of about this size. On the size of screen installed in this theatre they fall short of meeting the minimum British Standard recommendation. A second possible light source would have been carbon arc, and this is in fairly common use for professional film and slide projection; it is of high intensity, but it is not easily operated to produce a stable intensity or stable colour and also requires the extraction of fumes. Certainly, then, for the purpose of cine projection our best choice was the xenon arc. This lamp provides a constant white source of light.

The bulb is totally enclosed and there are no difficulties in the extraction of fumes, since there are none. The projector which we installed is the AEI 451 X., which projects 16 mm. film with sound-tracks optical or magnetic and also incorporates facilities for recording magnetic tracks without any extra attachments. The machine provides an illumination of up to 2,000 lumens which is well in excess of the 9–1,700 required by the British Standard. The extra in hand allows us to deal with research films which may be rather dense, for they may have to be made under other than ideal photographic conditions.

Although the British Standards give guidance for cine projection, we really had none for the intensity required for slide projection. We discussed the matter with the National Physical Laboratory and it became apparent that we should look for a projector which would provide us with at least 3,000 lumens. Again carbon arc was ruled out in view of its relatively difficult operation and fume extraction, and xenon seemed the most likely light source for our purpose. Unfortunately, no British manufacturer had made a xenon slide projector, and we were faced with a choice of either trying to interest a British manufacturer in producing such a machine or obtaining one from abroad. We took the former course, feeling that if a machine were to be developed specially for us, we could incorporate into it one or two features particular to our requirements. For example, on the same projector we wished to deal both with Standard British and American size slides, and also with 35 mm. colour slides. And in the case of the 35 mm. slides we wished to be able to show a picture always eight foot deep, whether the picture had been taken side ways on or long ways on. These various slide sizes and the facility to project long 35 mm. slides to a constant depth are incorporated in the quadrant at the front of our slide projector. (*See* p. 134.)

You will remember that our target had been about 3,000 lumens and on test we have been able to project in the Standard British format with an intensity of over 5,000 lumens, and in the 35 mm. format with an intensity of nearly 4,000 lumens. As far as the latter size is concerned, this intensity is quite unheard of in 35 mm. slide equipment. Obviously with such high intensities there is a fair danger of burning the slide and indeed it was on this point that most of the development took place in our machine.

The lamp house is a standard 35 mm. cine lamp house, and the projection lens system, except for the modification which I have described, is fairly standard equipment as used on carbon arc slide projectors. We required our slides to stay in the machine for at least thirty minutes without signs of deterioration, and this was achieved by removing the heat in banks of Chase glass heat-filters which are themselves air-cooled, by a diachroic filter which is also air-cooled, and by blowing air on to the slide itself. We can vary the intensity on both the cine and slide projectors almost at will and quite continuously.

Our projectors are not housed in a conventional projection box. The projectionist has to have a good view of the audience for the purpose of microphone switching, since we rely upon the microphones that you can see hanging from the ceilings to pick up discussion after a lecture. So with only two projectors we would have needed five holes in our rear wall, three of which would have been fairly large for viewing purposes, two of which would have been quite small for the passage of the projection beam, and even then whenever any other type of projector, let's say a television projector, had been used from the projection box we would probably have not had a hole in the right place to accommodate it. In order to provide the necessary flexibility a large projection window, with a sound-proof sandwich of glass, has been installed. (*See* p. 130.)

The lecturer gives his instructions to the projectionist for slides, lights, etc., in the usual way by means of a button system operating a buzzer and flags in the projection room and in an emergency there is a telephone link between the projection box and the stage. In due course the lecturer will be provided with an electrical pointer, though we are having some difficulty at the moment in obtaining one of the appropriate characteristics.

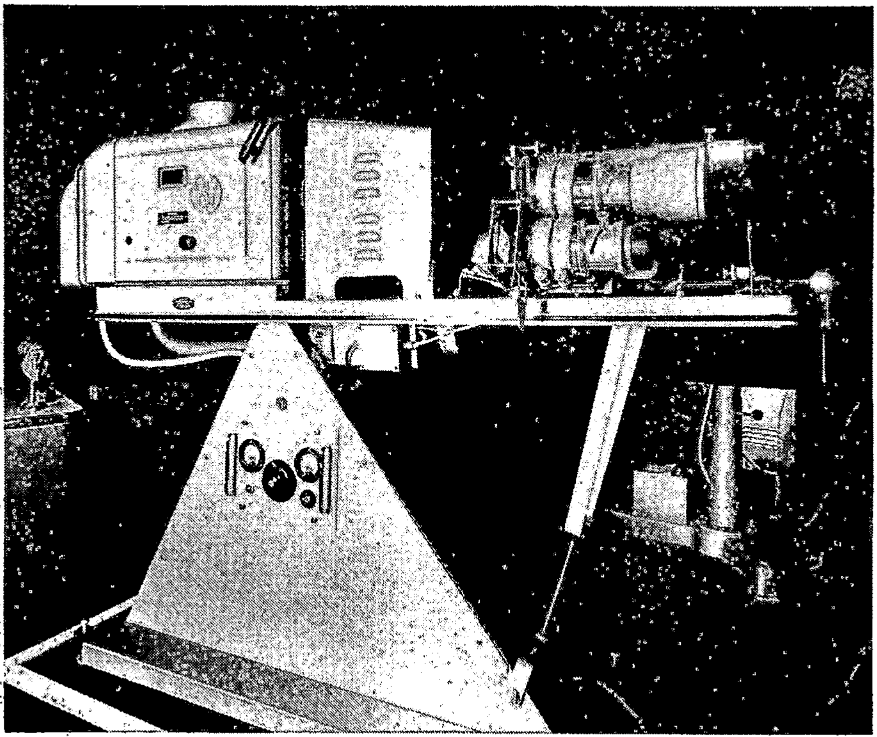
Of the sound reinforcement system in the hall I will say little for it is not yet complete. Electro-acoustics is still much of an art, and designs often have to be modified when the hall or theatre comes into being. Such is the case here, particularly as far as the microphones for dealing with discussions from the body of the theatre are concerned, but our basic specification requires that members of the audience may stand from where they are sitting and speak without the necessity of proceeding to the stage. Linked in with this system are full recording facilities, of course, and there are two tape-recorders installed in the projection room which operate from the sound reinforcement system. In addition to this, sound facilities are provided at a number of points throughout the rest of our building so that we can cope with an overflow of some four hundred people without too much difficulty when the need arises. The permanent installation consists of loud-speakers and on special occasions we can use closed-circuit television, since television lines have been permanently installed which connect this theatre with various points throughout the building and also with the front of the house in Hamilton Place; this would enable us to be linked with the national and international television services.

The possibility of providing translation services for international meetings has not been overlooked. The opportunity has been taken to provide a double-glazed window in the rewind room behind which will be seated three translators. They can hear over the sound reinforcement system whatever is being said in the theatre and translate it into the languages of the meeting. Their translations are then broadcast over a low-powered transmitter. An aerial system for this is permanently built into this theatre and the members of the audience receive the translations over personal radio sets of the type illustrated here, with which they can tune into the language of their choice. As with all other sound reinforcement systems, we have worked on the premise that it is not desirable for anyone to be attached permanently to his seat or lectern by wires. This ruled out wired translation systems, throat microphones for lecturers, etc. We believe the wireless translation system has proved itself over a number of years, and has the advantage that on the rare occasions when it may be needed the transmitters and other auxiliary apparatus can be hired. As the aerial is already built in to the theatre, there is no external evidence of the fact that the system is in use.

I could continue in this way to give a catalogue of the apparatus which has been installed, and to describe various technicalities, but I think this would not be of general interest. For those who are particularly interested in this aspect I would suggest that they read the appendix to Dr Moult's opening address which is reproduced in the January 1961 *Journal of the Royal Aeronautical Society*. This appendix provides a certain amount of technical information.

I would like to end by showing a very short film describing the building of the theatre and some of its features, to demonstrate the cine projection apparatus. Before this is done, you will note that we change screens. The screen which is in position at the moment is for the reception of slides which may be of varying sizes. As slides are accurately masked in themselves, they always present a clean edge to the picture. Cine film is not like this; if projected on to an all-white screen it will show a ragged edge which can be rather disturbing. In addition, in films of some artistic merit, a masked screen provides a greater apparent depth of focus to the picture, it is for these reasons that two mechanically operated screens have been installed. Before the film starts, therefore, you will see our slide screen taken up and the cine screen put in its place.

The xenon projector



After the film

I have attempted as far as possible to give you some idea of the way which the Society has chosen to satisfy the growing need for professional lectures. The extent to which we have been prepared to go in this has largely been dictated, as was explained in the beginning, by the fact that so many of our speakers are necessarily amateurs in the job of lecturing. The extent to which the need for lectures increases will, to my mind, be determined by the extent to which people and groups, such as yourselves, are successful in dealing with the present terrifying problems in the dissemination of information.

CURRENT TRENDS IN CONSUMER PROTECTION

Report of a paper given by Mrs Joyce Sanderson, Assistant Project Officer, *Which?*

Aslib Winter Meeting, 26th January 1961

MRS SANDERSON pointed out that the need for consumer protection had recently been emphasized by the publication of *Which?* and *Shopper's Guide*, by the Consumers' Association and the British Standards Institution respectively. The increased spending power of the British people had stimulated industry, enlarged the field for advertising, and encouraged a trend towards branding of all consumer goods.

Limited consumer protection was given in Common Law under the Sale of Goods Act, 1893, but this could be rendered ineffectual by the consumer entering into a direct contract with the manufacturer by signing certain forms of guarantee or warranty agreement. Government legislation had supplied protection in special fields under the Weights and Measures Acts and the Weights and Measures Bill now before Parliament; the Merchandise Marks Acts; Food and Drug Acts; and Advertisements (Hire Purchase) Act, 1957.

Certain professional bodies and institutions also offered a measure of consumer protection through the establishment of recognized qualifications and a high code of professional conduct for their members. Standards of certain retail goods were covered partially by certification from authorities such as the Council of Industrial Design, Royal Institute of Public Health and Hygiene, and the British Electrical Approvals Board for Domestic Appliances, but these only dealt with special aspects of the products.

The Good Housekeeping Institute offered a money-back or exchange guarantee on goods covered by its seal. The Institute was the sole arbiter and dealt with some thousand complaints each year. The Institute did not publish tests or standards but details of these could be obtained by written application.

The activities of the British Standards Institution in consumer protection could be summarized under three main groups:

1. Standards for manufactured goods. These standards represented the requirements to ensure that articles would prove satisfactory. Acceptance on the part of the manufacturer was voluntary except for a small group of cases, and the standards were strictly technical and might apply only to certain parts of the complete product. Details of both standards and tests were published.

2. Certification mark, called the Kite mark. The presence of this mark on a product was an assurance that the goods had been produced to comply with the requirements of the British Standard under a system of supervision, control, and testing operated during manufacture, and including periodical inspections

at the manufacturer's works in accordance with the scheme operated by the Institution.

3. The Consumer Advisory Council, which produced *Shopper's Guide,* ran a complaints service for members of the Institution, campaigned for improvements such as better labelling; and generally did its best to educate and inform the consumer.

Two sources of assistance to the consumer should also be mentioned: first the Citizens Advice Bureau which was particularly helpful with hire-purchase problems and legal advice, and second, the Retail Trading Standards Association, which aimed at improvement of conditions for both retailers—by whom it was largely supported—and consumers. It had its own textile testing house and investigated consumers' complaints on textiles, bad trading practice, and false trade descriptions.

The most significant recent development in consumer protection had no doubt been the publication in 1957 of both *Shopper's Guide* and *Which?* Both had been criticized, condemned, satirized, mimicked, but they had survived and developed. The two journals were not competitive.

Shopper's Guide was published six times a year by the Consumer Advisory Council of BSI, which was a representative body. The journal included details of laboratory and practical tests and other information. It was financed from annual subscriptions of 10*s*.

Which? was an independent monthly published by the Consumers' Association, and published the results of comparative testing of goods and services. It was financed by subscription and governed by members of the Council of Consumers' Association in their personal capacities.

Unlike the Consumer Advisory Council, the Consumers' Association did not deal with complaints and did not give general advice to consumers, but did try to inform them.

Articles for testing were selected primarily from nationally known brands as these were the ones that readers had heard of or seen advertised and wished to know more about; secondly, brands which were well known locally or brands which claimed special qualities of performance or price if it was not possible to test everything on the market.

The ideal would be, of course, to test all brands on the market, but this was sometimes quite impossible. The Association intended to increase and improve testing of all products, but one of the major difficulties was lack of laboratory facilities.

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ASLIB PROCEEDINGS

incorporating Aslib Information

Volume 13 **June 1961** **Number 6**

ASLIB CALENDAR

June

FRI.23. Technical Translation Group visit to Birkbeck College.

July

SAT.1. Fuel and Power Group visit to UKAEA, Harwell.

THUR.13 – SUN.16. Aeronautical Group annual conference at Cranfield.

FRI.21 – MON.24. Northern and Midlands Branches conference at the University College of North Staffordshire.

September

* WED.6 – SAT.16. FID conference at Caxton Hall, London, SW1.

THUR.28 – FRI.29. Scottish Branch information course in Glasgow.

* For sessions open to Aslib members see FID programme, available from Aslib.

Midlands Branch

The Annual General Meeting was held on 29th March at the College of Advanced Technology, Birmingham. Officers for 1961–2 were elected as follows: Chairman, Mr B. M. Bland, University of Birmingham; Vice-Chairman, Mr D. R. C. Whale, Tube Investments Ltd; Hon. Secretary, Mr E. H. C. Driver, College of Advanced Technology, Birmingham; Hon. Treasurer, Mr B. H. Vickery, GKN Group Research Laboratories, Wolverhampton. Mr Bennitt retired from the Committee after five years' service.

After the business meeting Mr R. L. Collison spoke about the libraries of the BBC and a film entitled *This is the BBC* was shown.

Film Production Librarians' Group

At the Annual General Meeting, held on 5th April, Mr John Mountford, the retiring Group Chairman, gave a brief account of the past year's activities and

Mr David Grenfell reported on the progress of the Cataloguing Committee in their task of creating a code of rules for the cataloguing of film material. Mention was made of the success of the Group's *Directory of film production libraries,* which is available, price 5*s* 6*d*, from Mr H. Wynder, 33 Sylvester Gardens, Hainault, Essex. The meeting concluded with three films: *Time to remember, Heroic days,* and *The revealing eye.*

Group Officers for the year 1961–2 have been elected as follows: Chairman, Mr Derek Gooch, Rank Organization Film Library; Hon. Secretary, Mrs Anne Hanford, Hon. Treasurer, Mr Harry Wynder.

Furniture Group

The Annual General Meeting was held on 25th April at the Victoria and Albert Museum and was well attended. The following Officers were elected: Chairman, Mr B. Agard Evans, Ministry of Works Library; Deputy Chairman, Mr G. L. Harding, Shoreditch Public Library; Hon. Secretary, Mrs I. Wagner, Furniture Development Council; Hon. Treasurer, Mr L. J. Mayes, High Wycombe Public Library.

It was reported that the Group's recommendations on UDC Furniture schedules had been accepted by the International Federation for Documentation (FID) and were already in use. Preparation of the proposed union list of books on furniture was progressing and it was expected soon to be ready for publication. The meeting was followed by an amusing and informative talk on 'Fake furniture' by Mr J. F. Hayward, Keeper, Department of Woodwork, Victoria and Albert Museum. Mr Hayward illustrated his talk with many slides.

Technical Translation Group

At a meeting at Aslib on 28th April Mr J. B. Reed of DSIR and Mr Martin Wright of the Iron and Steel Institute spoke on different aspects of the reproduction of translations. Mr Reed dealt with preparation of a master copy for photography, emphasizing the advantages of using as much of the original material (such as mathematical formulae) as possible, thus avoiding unnecessary checking and possibility of error. Mr Reed showed that, with two copies of the original language text a translation could be made and pasted on to each page, ready for photographing for reproduction.

Mr Wright dealt mainly with the problems involved in offset-litho reproduction of illustrations for translations duplicated by office stencil. A lively discussion ensued.

Textile Group

The Annual General Meeting was held on 5th May at British Nylon Spinners Ltd (BNS), Pontypool, where, in the morning, members were shown the Administrative Library and Showroom. Mr W. Ashworth, British Nylon Spinners Ltd, was elected Chairman in succession to Mr V. D. Freedland, and Mrs M. I. Lomax, Tootal Broadhurst Lee Co. Ltd, was re-elected Honorary Secretary for the year 1961–2.

The business meeting was followed by a talk by Mr P. Thornton of BNS on 'Textile training with the Company' and by a visit to the Training Department, Research Library, and Information Department.

British Museum Reading Room

As from 9th May, the British Museum Reading Room and North Library are open in the evening on Tuesdays and Thursdays until 9 p.m., instead of Wednesdays and Fridays until 9.30 p.m. (*Aslib Proc.* vol. 12, no. 6, p. 215). Requests for books and applications for readers' tickets are accepted until 8 p.m. The State Paper Room is open during the same hours but is accessible in the evening only through the Reading Room.

Glossary of Petroleum Terms

The third edition of the Institute of Petroleum *Glossary of petroleum terms* has recently been published. The glossary has been compiled by the Nomenclature Subcommittee of the Institute and edited by Mr George Sell. It contains nearly 500 special terms which are regularly used in the petroleum industry, defined and arranged in alphabetical sequence. Terms used in United Kingdom petroleum legislation are listed with their statutory descriptions in an appendix. The book contains also a list of abbreviations of eighty-five official bodies with their full titles. *Glossary of petroleum terms,* 3rd edition, is published by the Institute of Petroleum, 61 New Cavendish Street, London W1, price 5*s*.

Science Information Personnel

A report, in the form of a booklet with the above title, issued in the US, describes the work of science information officers (the chosen title among the many used) and the growing need for it. An attempt is made to analyse scientific information work and to assess the relative importance to its practitioners of knowledge of science, librarianship, foreign languages, and information techniques. The report, which is based upon the results of a survey and the proceedings of a symposium on technical information personnel, includes chapters on education and training. The investigations, carried out by L. Cohan and K. Craven for the Modern Language Association of America, were backed by the US Office of Education and the National Science Foundation. Copies of the report may be obtained from Science Information, PO Box 624, Radio City Station, New York 19, NY, price $1.50 (11*s* approx.).

Chinese Serial Publications

The Library of Congress *Information Bulletin,* vol. 20, no. 12, 20th March 1961, announces three recent lists of Chinese serial publications.

1. *Current holdings of Communist Chinese journals in the MIT libraries* (revised edition, February 1961). Gives titles and holdings for 138 journals, most of them in the natural and applied sciences, though twenty-four university journals and several general bibliographical works are included. Copies of this list are available free to libraries on application to Ryburn M. Ross, Associate Director, MIT Libraries, Massachusetts Institute of Technology, Cambridge 39, Massachusetts, USA. Microfilms or electrostatic prints of articles from the journals can be obtained from the Microreproduction Laboratory, Room 14-0551, at the Institute.

2. *Communist Chinese periodicals in the agricultural sciences* (US Department of Agriculture Library, Library List no. 70). Gives holdings for 115 titles arranged in alphabetical order. It includes periodicals on agriculture and related subjects

such as biology, botany, and biochemistry, but not agricultural economics, rural sociology, or marketing, which will be covered in a separate bibliography. Copies of this list are available free to libraries on application to Foster E. Mohrhardt, Director, US Department of Agriculture Library, Washington 25, DC, USA.

3. *Chinese mainland journals: current* NLM *holdings,* issued in xerox reproduction by the National Library of Medicine, contains bibliographical information and gives NLM holdings of sixty-nine titles in the fields of medicine and pharmacology. Copies available free to libraries on application to Col. Frank B. Rogers, Director, National Library of Medicine, Washington 25, DC, USA.

AUTOMATIC RETRIEVAL OF TECHNICAL INFORMATION

W.H.P. LESLIE, B.SC., M.I.E.E.
National Engineering Laboratory, East Kilbride

Summary of a lecture to the Scottish Branch of Aslib on 3rd February 1961

ABSTRACT

THE article considers how technical abstracts can be coded, filed and retrieved in the particular circumstances at the National Engineering Laboratory, East Kilbride, where a DEUCE high-speed computer is available. The author is not satisfied with the UDC for indexing abstracts but has evolved a similar system designed to fit the instrumentation field.

INTRODUCTION

The system proposed is part of an unfinished project which must be regarded as a hobby since it is not part of the official Research Programme of the National Engineering Laboratory. It is not suggested that everyone with an information retrieval problem should immediately purchase a high-speed computer for this purpose, but where such a computer already exists a method such as that to be described is worth investigating. The classification method to be described is not the result of a scientific investigation of a theoretical nature into classification but rather may be regarded as the result of a twenty-year experimental investigation into filing abstracts on instrumentation and trying to find them again later. Instrument articles, unfortunately, cover a very wide range of scientific applications and are to be found in almost all scientific and technical journals, including medical journals. Principles applied to a medical measurement can often be used without modification in scientific or engineering applications. The remainder of the article will deal with, first, subject coding, second, the use of a computer, and finally, the end product.

DEVELOPMENT OF SUBJECT CODING

The author's initial efforts in recording articles of interest involved a loose-leaf book in which a page was devoted to each subject of interest, together with a general page for each letter of the alphabet. Owing to the amount of writing required, only the title of the article and the source were entered, and usually this was only done on one particular subject page. As references accumulated in this book it became difficult to locate articles which were known to be referred to, because of the single subject entry of material which more often than not dealt with several different aspects simultaneously. Subscriptions to *Science Abstracts* and *Wireless Engineering Abstracts* led to the growth of a 5 × 3 in. card index in which abstracts, in addition to author and source, were filed. As each abstract had to have its subject recorded it was natural for the subject headings to be shortened and a typical portion of the list of headings might be as follows:

M	General 'M' subjects
M1	Microphones
M2	Magnetic
	Then as M2 grew
M2–1	Magnetic apparatus
M2–2	Magnetic materials, etc.

Such a system is so similar to UDC that it is necessary to consider why the UDC classifications which existed on both *Science Abstracts* and *Wireless Engineering Abstract* cards were not used. The answer, I think, lies in the fact that the UDC is based on the Dewey classification which was designed about 1870, and which may well be adequate for subjects which were widely used at that period. As new subjects have developed since then, it would appear that there have been increasing efforts to try and squeeze them into an existing framework which is hostile to them. The UDC is particularly unsuitable for instrument abstracts because it ignores the fact that the same principles are used in measuring a quantity in all fields of human endeavour. A typical example would be the 'measurement of time' which is at least classified under the following numbers:

389.2	Metrology time signals
522.5	Astronomy—chronometers
529.7	Chronology—time measurement
531.76	Mechanical measurement—time
681.11	Instruments—chronometers
	Then also
621.317.755	Oscilloscopes
621.396.615.17	Time bases.

The letter plus number classification which was adopted for the instrument abstracts has worked fairly well for fifteen years, largely because it is easy to expand particular classes which become popular, but eventually there became places where the ten alternatives offered by decimal numbers were not found adequate. During the last few years these numbers have been altered to a purely alphabetical arrangement of the same basic type, allowing twenty-six alternatives, if necessary. A typical example is given for measuring electrical resistance :

	ME	Measure
one subdivision being	MEE	Measure electrical
,, ,, ,,	MEEZ	Measure electrical impedance
,, ,, ,,	MEEZR	Measure electrical impedance, resistance.

Such a system, either alphabetic or numerical, has the advantage that one subject code such as MEEZR can be used to indicate four different pieces of information. Thus, if all the cards bearing ME are moved from the index they contain all the information on measurement. All cards bearing MEE contain all the information on measuring electrical quantities, all bearing MEEZ contain information on measuring electrical impedance, and so on.

This system began to break down for three reasons:

1. In recent years the bulk of abstracts has been increasing annually until it becomes difficult for all coding to be done by one person (8,537 *Science Abstracts*—Electrical Engineering in 1960). Different individuals have then to exercise their judgment individually as to the best single code to put on the card (because large numbers of cards for each abstract are impracticable).
2. The type of work for which the index has been accumulated has changed four times during its existence. Thus, seven years were devoted to electrical engineering, four to electrical and radio engineering, nine years to fluid instrumentation, and one year to metrology. At the time of coding and filing the card it is necessary to choose the particular subject coding under which it is most likely to be required later. Should the work by that time have changed it becomes a matter of inspired guesswork to find the original reference.
3. Most authors write articles which deal with more than one subject. Indexing these articles becomes difficult, particularly when at the time of searching for them combinations of two or more subjects are being sought. A particular example illustrates this point; the article was entitled 'The Hydraulic Machinery Laboratory of the California Institute of Technology'. This could be classified as 'Laboratory Design' under a single subject classification: I have even seen it classified under 'Knapp', the author of the paper. Should one be searching for references to the 'precision speed control of electric dynamometers' it is unlikely that this article will be retrieved. A more likely way of finding out about this article would be an accidental visit to the Laboratory in California; this would possibly be the most attractive method!

Another alternative in searching for references is the use of the annual index in one form or another. It may be that instrumentation is again an awkward subject for searches in annual indexes; the author has usually found a browse through the annual index an interesting but unrewarding pastime. The trouble can best be illustrated in the form of a slight caricature from a neighbouring subject, although it is guaranteed to be genuine. This concerns a search made in the stores catalogue of a large Research Laboratory some twenty years ago which is still remembered vividly. Some 'thick-walled rubber tubing for a vacuum connection' was required. The following possible entries were sought in turn in vain, 'rubber', 'tube', 'pipe', 'flexible', 'vacuum', 'pressure'. On asking one of the more experienced users it transpired that the correct entry was to be found under 'India' because it was India rubber tubing. Much the same thing happens in searching through the annual index. Great ingenuity is required in thinking of all the possible headings and subdivisions under which the required material is indexed, complicated by generous 'see' and 'see also' which give an ever-widening search for the material. Searching over a period of, say, ten years and half a dozen different annual abstract indexes becomes a labour which is often thought not worth while.

USING A COMPUTER

An attractive approach to the problem is to put on each card all the subject codes which correspond to material dealt with in the particular article abstracted.

This is a process that can be safely delegated to different people at different times. The judgment required is whether a passing reference to a topic is of sufficient significance to justify coding. Unnecessary enthusiasm is not disastrous since it would only result in a few extra codes being recorded and possibly the abstract might be retrieved later when it was not significant from the particular point of view. However, every system will suffer from this drawback (with the possible exception in the distant future of automatic classification by computer). In most systems, due to the labour involved in using each code (extra cards, extra holes to punch in extra cards which have to be taken from and returned to filing systems) the emphasis is on minimizing the number of classifications used. Judgment is then more critical as information may well be irretrievably lost.

At the time of the search combinations of subject codes can be specified to suit the particular requirement. A number of methods exist such as the National Bureau of Standards Peek-a-boo system, the Uniterm, the use of punched cards, or the use of edge punched cards and so on, but each system has its snags.

What can the computer do in a system like this? The digital computer is normally arranged so that it can make a rapid series of choices between one course of action and another, depending on the information with which it is dealing. A simple example of a computer process is shown in Fig. 1.

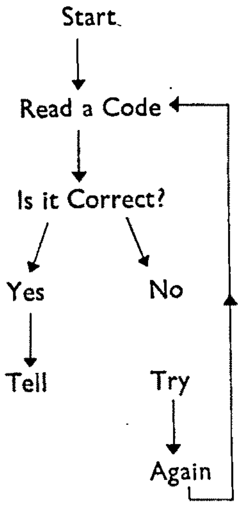

FIGURE 1

The information is normally supplied to the computer on punched cards, punched tape or magnetic tape. For our purpose punched tape is most suitable because there exist adequate tape-operated typewriters which can be used to prepare the material for the computer and to copy out any answers received from the computer. The information is typed in the normal way on the tape typewriter and a paper tape has patterns of holes punched in it to represent each letter and typewriter function. We can consider two pieces of tape prepared, a long subject tape which contains a series of subject codings, each group of subject codings being terminated by a reference code indicating the serial number of abstract. A short specification tape can be prepared on which one or more subject codes are recorded. For example, these tapes may contain the information shown in Fig. 2. These tapes can be used in a search through long lengths of subject tape dealing with many abstracts. The specification tape is first read into the computer in order to instruct it which combination of subject codes are to be found. A very much simplified computer programme would then look something like the diagram in Fig. 3.

It is not possible here to examine all the various possible paths around this programme but let us assume that the computer has found CMD on the subject tape for reference A1234 of Fig. 2. The next step on the computer is marked with an 'X' in Fig. 3, then the next specification, FQMS in this case, is brought

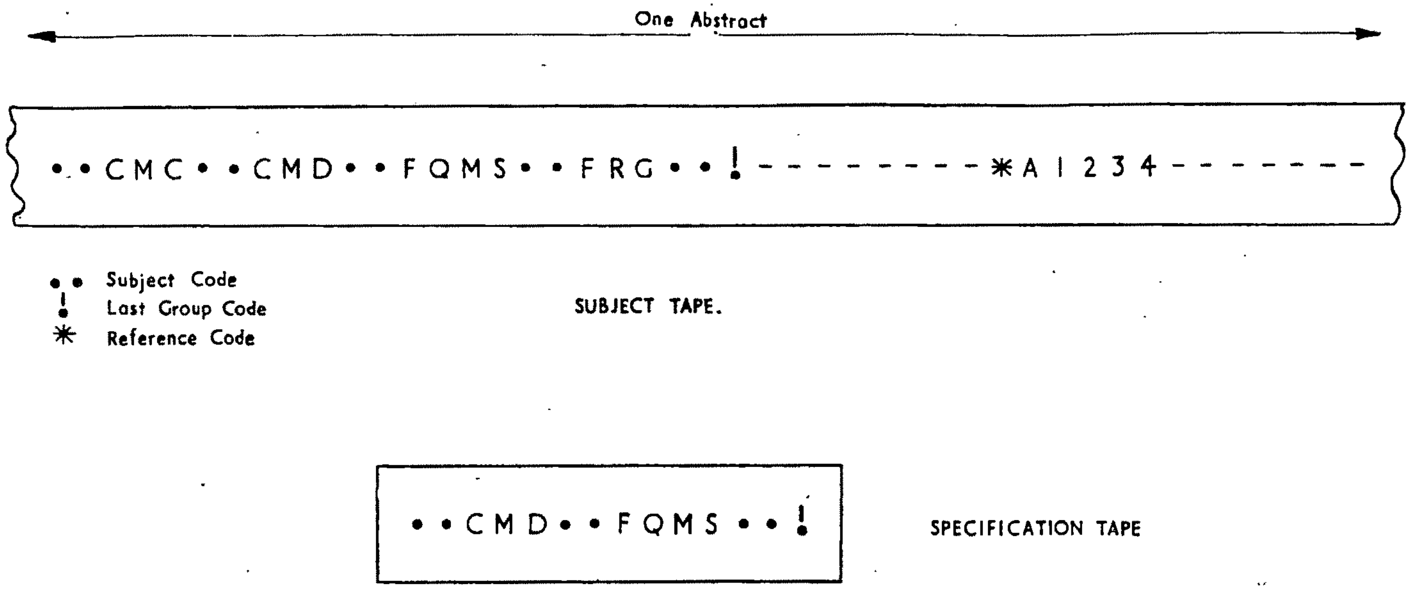
One Abstract
• • C M C • • C M D • • F Q M S • • F R G • • ! - - - - - - - - - - ✱ A 1 2 3 4 - - - - - - - -
• • Subject Code
! Last Group Code
✱ Reference Code
SUBJECT TAPE.
• • C M D • • F Q M S • • !
SPECIFICATION TAPE

FIGURE 2. *Information on Input Tapes*

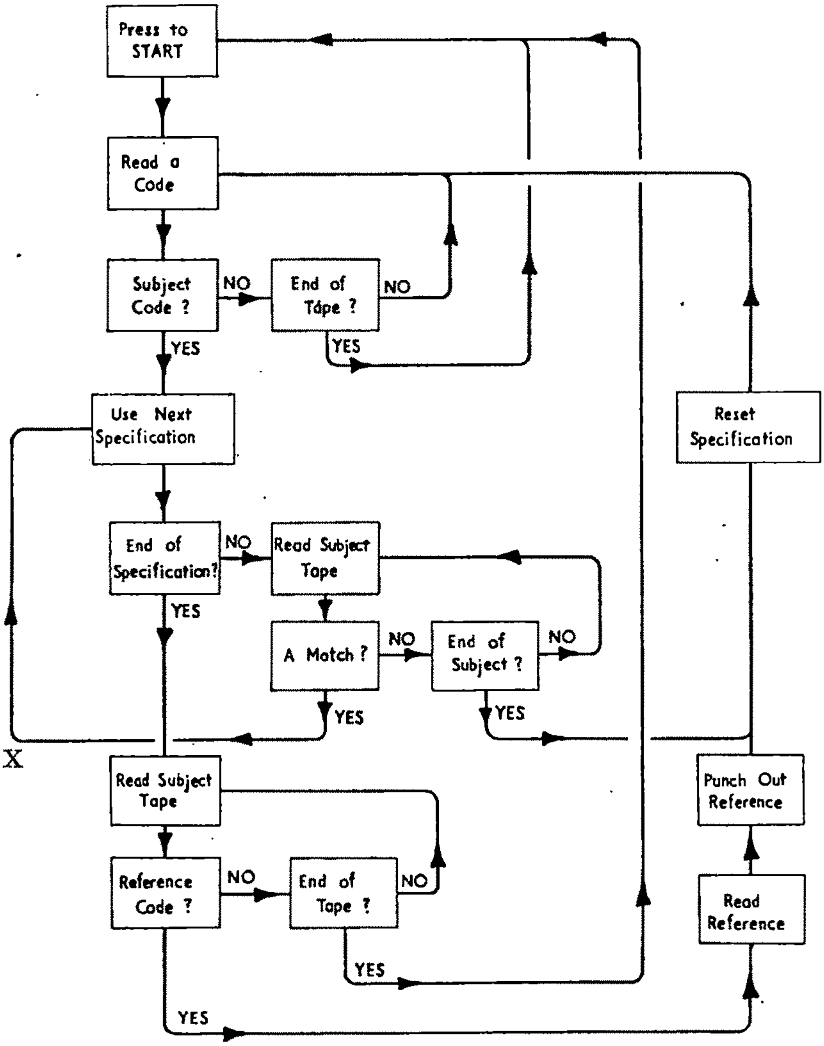

FIGURE 3. *Programme*

into the working part of the computer. This is checked to see whether it is the end of the specification. As it is not, the next subject code is read. This happens to be FQMS also so that a match is obtained, and the programme proceeds round the link 'X' again to read the next specification. This turns out to be the end of specification code, which causes the next subject tape character to be read, and the next and the next until the subject reference code is obtained. The subject reference number is then read, A1234 in this case, and punched out on a piece of punched paper tape, as the computer proceeds to reset the specification to the beginning again, CMD. The subject tape is then read again for the following abstracts to see if any others agree. Using such a simplified programme a specified set of subject codes can be located from long lengths of subject tape. The particular subject coding chosen is very convenient for such a programme. Consider FQMS, the code for 'frequency measuring standards'. Should the search be for any article dealing with 'frequency', only FQ need be specified, and the programme can be arranged to accept FQ followed by any letters such as FQMS. It is also possible to specify in the tape that certain subjects must not occur, for example, we might specify FQ to occur and FQMS not to occur simultaneously. Codes can be allocated to indicate the type of document being dealt with thus:

CM	Class of material
CMA	Class of material, Abstract
CMB	Class of material, Bibliography
CMC	Class of material, Circuits given
CMD	Class of material, Test data
CME	Class of material, Experimental method
CMI	Class of material, Inventive claim
CMIP	Class of material, Patent, etc.

Further difficulty arises with subject coding. An article may be written on a 'transistor controller for voltage and frequency'. If codes are allocated to 'transistor', 'control', 'voltage', and 'frequency' this particular article may be obtained when searching for the 'frequency characteristics of transistors'. It is necessary to indicate in the subject tape which subject codes are grouped together and this can be done in two ways. In the English language the order in which many words occur is important, thus, 'ice cold' has a different meaning from 'cold ice', 'china tea' from 'tea china', and 'venetian blind' from 'blind venetian'. Similar examples occur in technical terms, so that it is sometimes advisable to link pairs of terms under single subject coding. 'Valve amplifier' will be coded as AMV, a subdivision of AM, the code for amplifiers, whereas if the subject were a particular type of 'amplifier valve' it would be coded as VCV (vacuum or thermionic amplifier valves) a subdivision of VC for valves. Where ambiguity due to order is not likely to arise and where one subject is just as likely to be of interest as the other, separate codes can be allocated to each and the subject coding broken into groups to indicate that combinations should only be sought inside each group. Both methods are used here.

ABSTRACT CARD

In deciding the form of the material which should be typed on the abstract card, and supplied to the computer in the form of punched tape, there are two extremes which have to be avoided. The complete abstract card and subject coding can be kept in plain English easily understood by any reader. This, however, will greatly increase the amount of work the computer is called on to perform. At the other extreme, only information of a logical form suitable for the computer would be recorded—but this would be unintelligible to anyone who had not spent a considerable time using the system. The proposed layout to be described is thought to be a reasonable compromise between these two opposing requirements. A card is originally typed and checked and appears in the following form:

. . CMC . . CMD . . FQMS . . FRQ . . ! A1234
// SMITH, E. R. // BRITT, J. !
((Proc. I.E.E. B.,, 56–12 ((! pp 345–367
Design and Test of 1 kc/s frequency standard.
The paper describes..
....
....
....
....of 1 in 10^7. (5 × 3 card)

It is necessary to choose codes to instruct the computer where to look for subject, author or source and these codes must not occur normally in typescript and yet the typewriter has got a very limited capacity. For this reason two full stops occurring one after the other are used to indicate that a subject code is following; two // indicate that an author's name follows, two ((together indicate that a source such as a journal follows; and two ,, together indicate that the year and month of publication follows. In each case the appropriate code followed by a ! indicates that there are no further groups to be looked at. As the subject codes have been formed by using the initial letters of the appropriate words in most cases, it is thought that the entire abstract is in a form reasonably useful to a reader whilst it is reasonably easy to programme a computer to search for any given combination of subjects, authors, source and dates that may be desired.

It is necessary to consider the time involved in searching through abstracts on the computer. Paper tape can be read at 800 characters per second so that complete abstracts which average 1,000 characters can be dealt with at about 50 per minute. Thus 1,000 abstracts can be dealt with in twenty minutes. If only the subject codes plus the abstract reference number are searched through, these average about 80 characters and can be searched at about ten per second; 1,000 abstracts can be dealt with in two minutes and 10,000 abstracts in twenty minutes. Larger volumes of abstracts can be dealt with by pre-sorting at a time when the computer would not normally be in use. For example, all the abstracts dealing with measuring, ME, in any form can be recorded on one tape. Should a search be directed to the measurement of any quantity, only this particular tape need be searched together with the tape containing all additions since the pre-sorted tapes were last up-dated.

It should be noted that the tape-operated typewriters can make use of codes on the tape so that when the computer either issues a punched tape with the selected abstracts in full, or indicates the numbers of the selected abstracts so that their individual punched tapes can be taken from the file, the typewriter can automatically type full abstracts. At the operation of a switch it can be made to produce only lists of author, title and source, omitting the subject codes and the abstract.

CONCLUSIONS

This article is a report at an early stage of work which is proceeding very slowly in one particular laboratory in this country. Two or three other laboratories appear to be performing similar elementary exercises on the subject in this country. In the author's opinion it is unfortunate that the subject should be ignored to such an extent here, compared with the large amount of effort which appears to be devoted to it in America. The author acknowledges the assistance of Mr A. Russell who has done the detailed programming necessary to demonstrate information retrieval in action and also the help of Mr M. Silver of Bulmer Calculator Company who kindly provided the use of Flexowriter in order to make the demonstration possible.

The article is published with the permission of the Director of the National Engineering Laboratory, East Kilbride.

Letters to the Editor

Madam,

On p. 89 of the *Aslib Proceedings* for April 1961, Sir Stanley Unwin is reported as saying that the paper for eight additional index pages in a book is unlikely to cost less than £7 per thousand copies. Clearly this is a misreport. Sir Stanley was almost certainly referring to the costs of machining and of paper for the eight pages. Even so I suggest that the figure of £7 is a little high for a *minimum* one; with many scientific books of average quality production where the additional eight pages need not be printed as a separate signature, they could be included at a marginal cost of £5–£6 per thousand copies.

Yours truly,
CHRISTOPHER T. RIVINGTON,
Managing Editor,
Blackie & Son Limited,
16–18 William IV Street,
London WC2.

1st May 1961.

BRITISH PATENT SPECIFICATIONS

Dear Madam,

For more years than I care to count I have had to get the gist of British patent specifications of new inventions in the cotton and man-made fibre industries. Having suffered much, I can no longer refrain from calling public attention to some deplorable aspects of the printing and publication of our 'complete specifications'. I appreciate that the demand for copies may be so small that the Patent Office must needs put out the printing to the cheapest firms, but the result does not do credit to a Government institution. My chief complaints are; 1, the multiplicity of styles; 2, the sheer inaptitude of much of the type-setting, especially of simple vulgar fractions in mathematical arguments; 3, the frequency of printing errors, suggesting a complete lack of proof reading; and 4, the occasional use of fantastic lettering and numerals on illustrations, making it difficult to study them.

During the past year or so another source of annoyance has become quite common—the practice of using American terms and spelling. In Textiles one encounters terms that are not used in the British industries, such as 'filling' for 'weft'. 'Fibre' is commonly spelt 'fiber', and so on. The trouble is not confined to American inventions; it frequently happens that descriptions of German and Japanese inventions also follow American ways.

Is a British Patent valid if the specification is not in accordance with British industrial practice? Must the Patent Office accept the wording put out by the inventors or their agents? Is it unreasonable to expect efficient editing and production of British Patent Specifications?

J. C. WITHERS,
(Honorary and founder member of Aslib),
Penmere,
11 Highfield Park,
Heaton Mersey,
Stockport, Cheshire.

2nd May 1961.

SELECTIONS FROM THE RECENT LITERATURE

ALL ITEMS listed may be borrowed from the Aslib Library, except those marked *, which may be consulted in the Library.

Books and Pamphlets

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New technical libraries in industrial organisations: a one day conference, 14th March, 1961 . . . London. London, the Institute, 1961. 17 pp. mimeographed. tables. *gr.*

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Catalogue of 35mm and 16mm sound films, including a filmstrip section, 1961–62. London, Central Office of Information, [1961]. 333 pp. plates. 4*s* 6*d*.

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Index of chemistry films: a comprehensive list of films and filmstrips on chemistry and related topics. 2nd ed. London, the Institute, 1961. viii,217 pp. 5*s*.

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WILFRED E. GOODAY, ARSM, DIC, MIMM, FIL. Technical translation from French and Roumanian. 161 Rivermead Court, London, SW6. Renown 1912.

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APPLICATIONS are invited by MILES LABORATORIES LTD from men or women pharmacists or graduates in chemistry or physiology for appointment to the post of SCIENTIFIC INFORMATION OFFICER. Duties will include the preparation of reports from technical material, scanning current literature, and supervision of the keeping of research reports and other records. Experience in information work is essential. Experience in the pharmaceutical industry is desirable. The starting salary will be of the order of £1,200 per annum, depending on experience, qualifications, and age. Employment is subject to medical examination and to membership of a contributory pension scheme. Please send details of qualifications, experience, and age in writing to: Dr G. Walker, Research & Medical Division, Miles Laboratories Ltd, Stoke Court, Stoke Poges, Bucks.

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CHEMICAL INSPECTORATE (War Office), Woolwich, seeks two ASSISTANTS (female) for technical information and library work in the chemical field (simple searching, abstracting, compiling of records, assisting in library). Reading knowledge of at least one foreign language desirable. Qualifications: GCE (A) chemistry and physics (or mathematics) and three O level subjects including English and Mathematics, or HNC chemistry. Associateship of Institute of Information Scientists an advantage. Salary: £458 (at 18)–£983 (max.) plus £20–£40. Promotion prospects; day release for study. Forms from Ministry of Labour, Technical and Scientific Register (K), 26 King Street, London SW1, quoting ref. F.315/1A.

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Eighty-five years after the (anonymous) publication of the first edition, the DEWEY *Decimal Classification and Relative Index* is now in its 16th (1958) edition, and the 17th edition is in active preparation. *Additions, notes and decisions* being issued quarterly meanwhile to users of Edition 16 who request it, embodying the latest current developments in knowledge and discovery.

The Directors of Forest Press, who include the son of the Founder, the President of the Council on Library Resources, and the Presidents of Stechert-Hafner Co. and the H. W. Wilson Co., constantly keep in mind the needs of different types of library and publisht in 1959 the *8th Abridged Edition,* based on Edition 16, of the Decimal Classification.

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His Decimal Classification is a living service which is constantly being revised in accordance with present-day needs.

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Believing that the interests of universal classification must be fostered by every effort, the Directors continue Melvil Dewey's policy inaugurated 65 years ago, of maintaining close co-operation with the Editors of the Universal Decimal Classification (UDC).

We do not believe he would be so pleased that

Some of the foremost British classifiers of the day are introducing their own unauthorized additions and alterations to the DEWEY Decimal Classification, and incidentally vitiating some of the most important principles—particularly the simple notation consisting solely of Arabic numerals—on which the Classification is built.

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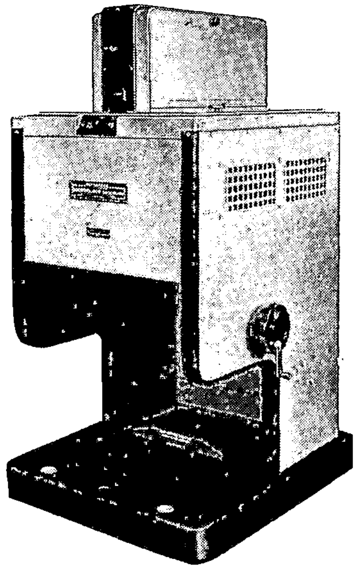

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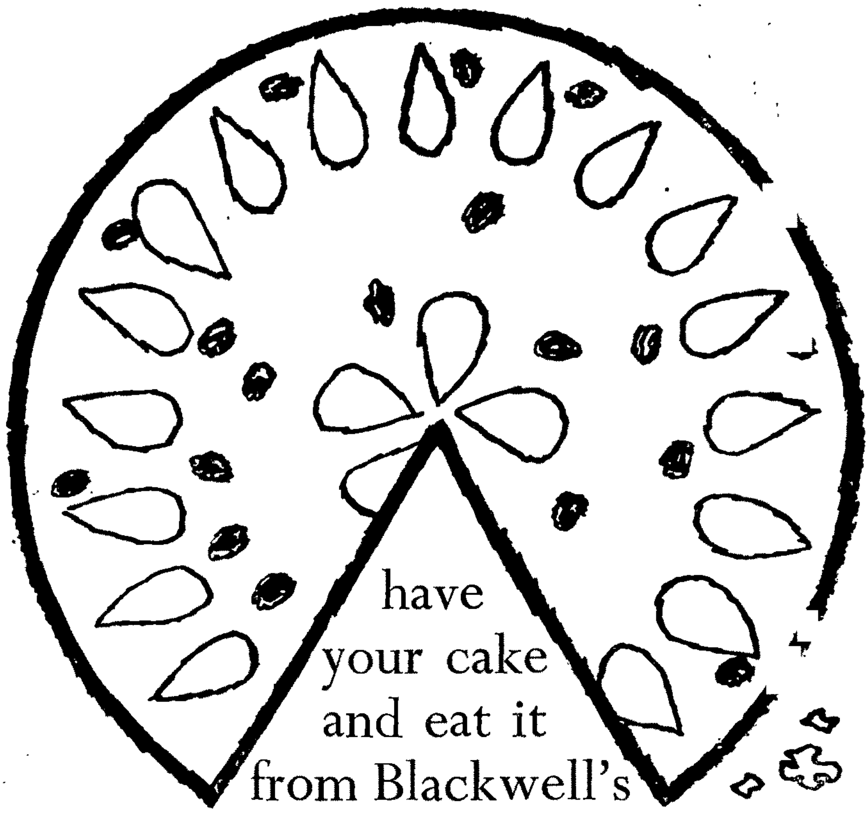

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BLACKWELL'S

ASLIB PROCEEDINGS

incorporating Aslib Information

Volume 13 July 1961 Number 7

ASLIB CALENDAR

July

FRI.21 – MON.24. Northern and Midlands Branches conference at the University College of North Staffordshire.

September

* WED.6 – SAT.16. FID conference at Caxton Hall, London SW1.

THUR.28 – FRI.29. Scottish Branch information course in Glasgow.

* For sessions open to Aslib members see FID programme, available from Aslib.

President

Aslib is most fortunate this year to have secured the services as President of Sir Lindor Brown, Waynflete Professor of Physiology in the University of Oxford and Biological Secretary of the Royal Society. It will be remembered that Sir Lindor gave the opening address at the International Conference on Scientific Information held in Washington in November 1958, and that he has been Chairman of the Consultative Committee for the National Lending Library for Science and Technology since its formation.

Vice-Presidents

Sir Reginald Verdon-Smith, Chairman and Joint Managing Director of the Bristol Aeroplane Co. Ltd, has become a Vice-President and Aslib would like to welcome his interest in its affairs. He succeeds Sir Alexander Todd, who has completed six years in office during which time he gave much practical help to the Association. Aslib is deeply grateful to him.

Elected Members of Council

In this year's Council elections there were sixteen candidates for the nine vacant seats. The following candidates were successful: T. M. Aitchison, English Electric Aviation Ltd; R. L. Collison, British Broadcasting Corporation;

S. P. L. Filon, National Central Library; Miss M. Gosset, Atomic Energy Research Establishment, Harwell; L. G. Patrick, Aluminium Laboratories Ltd; J. B. Reed, Individual Member; P. H. Sewell, North-Western Polytechnic; K. D. C. Vernon, Royal Institution of Great Britain; R. C. Wright, Individual Member. Ballot papers were received from approximately 25 per cent of those members entitled to vote.

Aslib Office Hours

Members are asked to note that the official open hours at Aslib headquarters are now 9 a.m. to 5.15 p.m. Monday to Friday inclusive. The telephone switchboard is closed at 5.15 p.m.

Aslib Library Coverage

From time to time important articles on various aspects of special librarianship and documentation are published in non-library journals. Since these are not normally received at Aslib a number of articles which would be suitable for inclusion in the library collection are missed. It would be of great benefit to the Aslib library if members would co-operate by notifying the Librarian of suitable articles noticed by them. Forms will be provided. Certain of the Aslib Groups have agreed to watch journals in their fields but further help would be appreciated in ensuring the fullest possible coverage. Members willing to assist are invited to write to the Librarian, indicating the subject fields regularly scanned.

Scottish Branch

Members of the Branch visited the Isle of Cumbrae in the Firth of Clyde on 31st May, in glorious summer weather, to see the library, museum, and aquarium of the Scottish Marine Biological Station at Millport. The Director, Dr C. H. Mortimer, F.R.S., and the Librarian, Miss E. Farmer, tirelessly answered questions on the activities of the Station and on the various species of fish, marine plants, and molluscs, etc., which are found around the Clyde coast. The Branch recommends any members who may be in the area on holiday to visit the Marine Biological Station. They will be sure of a warm welcome.

Engineering Group

Sixteen persons attended the Group luncheon at the Anglo-Belgian Club on 2nd June. At the Annual General Meeting, which followed, the reports of the Chairman and Treasurer were received. Discussion centred in ideas for future activities. Group Officers were elected as follows: Chairman, H. W. Gatehouse, Central Electricity Generating Board; Vice-Chairman, J. G. Hall, Esso Research Ltd; Hon. Treasurer, Dr M. Goyer, Ministry of Aviation Rocket Propulsion Establishment; Hon. Secretary, D. E. Clarke, CAV Ltd, Larden Road, Acton, London W3.

Birthday Honours

Members will have been pleased to see in the Birthday Honours List that Dr W. L. Francis, Director, Grants and Information, Department of Scientific and Industrial Research, has been appointed C.B.E., and that Mr H. S. A. Marshall, Librarian, Royal Botanic Gardens, Kew, has been appointed M.B.E.

Library Service Working Parties

Mr P. H. Sewell, a newly elected member of Aslib Council, has been appointed Library Adviser to assist the Ministry of Education with the programme of two technical working parties set up by the Minister to study the implications of those sections of the Roberts Report* concerning interlibrary co-operation and the public library service, respectively. Mr Sewell will also assist the Ministry in preparation of the proposed new legislation on public libraries. For these purposes he has been granted leave of absence from his post as Head of the Department of Librarianship at the North-Western Polytechnic.

Institute of Information Scientists

At the Annual General Meeting of the Institute, held on 31st May, it was announced that Sir Lindor Brown had kindly agreed to serve as President of the Institute for the coming year.

Mr Geoffrey Parr

It was with deep regret that news was received in Aslib of the death, on 30th May, of Mr Geoffrey Parr, M.I.E.E., Technical Editor and a Director of Messrs Chapman and Hall for the past twelve years. Mr Parr was Chapman and Hall's representative in the Aslib membership and was well known to many members. Not the least of his many individual achievements was the joint authorship with Mr J. W. Godfrey of *The technical writer,* published in 1959.

Dr L. E. C. Hughes

We report with regret the death last month of Dr L. E. C. Hughes, who has been a member of Aslib since 1950. Dr Hughes was Honorary Assistant Secretary of the Society of Indexers, editor of *Chambers's technical dictionary,* and had recently been appointed editor of the new journal *World Aviation Electronics.* He was a well-known figure at Aslib meetings and conferences in which he frequently took an active part.

H. G. Wells Society

A society has recently been formed for study of the work and thought of H. G. Wells. It is non-political and non-sectarian and would welcome help in the proper assessment of Wells's contribution to modern thought. Particulars are available from J. R. Hammond, Hon. Secretary, The H. G. Wells Society, 39 Rugby Road, West Bridgford, Nottingham.

Who owns Whom

The fourth edition, 1961, of *Who owns whom: a directory of parent, associate, and subsidiary companies in industry and commerce,* is now available. The new volume shows an increase of some 3,000 United Kingdom subsidiary and associate companies since the last edition was prepared in 1960. The seven main sections include United Kingdom parent, subsidiary, and associate companies in relation one to another, United Kingdom companies with Western European associates and subsidiaries, and United Kingdom and United States parent, associate, and subsidiary companies in relation one to another. An addendum gives changes in ownership between press date (31st March) and 30th April 1961. *Who owns whom,* 1961, is compiled and published by O. W. Roskill & Co. (Reports) Ltd, 14 Great College Street, London SW1, at 6 guineas.

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* Ministry of Education Committee on the Structure of the Public Library Services in England and Wales. Report. HMSO, 1959.

Foundation Directory

The Russell Sage Foundation has announced publication of *The Foundation Directory,* a descriptive list of some 5,200 American foundations including corporate names and addresses, purposes and activities, and grants for the latest year of record in each case. Foundations are indexed alphabetically and classified by fields of interest. There is also an index of 14,296 foundation trustees and staff members. *The Foundation Directory,* prepared by the Foundation Library Center and edited by Ann D. Walton and F. Emerson Andrews, is published for the Center by Russell Sage Foundation, 505 Park Avenue, New York 22, NY, USA at $10 (73*s* approx.).

Patterson Award

Dr G. Malcolm Dyson of Loughborough, Leicester, has been given the Austin M. Patterson Award of the American Chemical Society for his work on the storage and retrieval of scientific data by computer techniques. The award is made every two years in honour of the late Dr Austin M. Patterson in recognition of contributions in the field of chemical literature and especially in the documentation of chemistry. This is the first time that the award has been made to a non-American.

NEW MEMBERS

CORPORATE

Name	*Location*	*Representative*
Almqvist & Wiksell	Sweden	F. Davids Thomsen
AMF-Sterling Limited	Australia	P. B. Laming
Angus, George & Co. Ltd	Lancaster	G. A. White
Bechtel International Ltd	London	R. H. Simmonds
Bolton Technical Teacher Training College	Bolton	T. McClintock
British Aircraft Corporation Ltd	London	Mrs J. A. Curry
British Granite & Whinstone Federation	London	N. G. L. Henwood
Chung Chi College Library	Hong Kong	Miss D. Chan
Conservative Research Department	London	G. D. M. Block
Crosby Lockwood & Son Ltd	London	H. Wilson
Darlington Wire Mills Ltd	Darlington	S. M. Tennick
Directorate of Military Survey Geodetic Library	Feltham, Middx.	B. J. V. Wechsler
Doncaster Technical College	Doncaster	W. Lomax
English Electric Co. Ltd	Stafford	P. Clague

Everett, W. H. & Son Ltd	London	R. S. Philpott
Farrer Boilerworks Ltd	Newark-on-Trent	G. R. Ellis
Federation of Civil Engineering Contractors	London	G. W. French
Hovercraft Development Ltd	Southampton	J. E. Rapson
Hughes International (UK) Ltd	Scotland	J. G. Scott
Indian Council for Cultural Relations	India	Mrs B. Mitter
Industrial & Commercial Finance Corporation Ltd	London	Miss M. E. Hartis
Institute of Directors	London	Mrs J. Pethick
Institute of Race Relations Ltd	London	Miss N. Uberoi
Iranian Oil Services Ltd	London	
Isle of Ely County Library	March, Cambs.	F. Houghton
Israel Mining Industries	Israel	M. Havatseleth
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Kinokuniya Book-Store Co. Ltd	Japan	H. Takeuchi
Linquavision Creative Communications Ltd	Lambourne End	C. Fegan-Sparks
Lockheed Hydraulic Brake Co. Ltd	Leamington Spa	J. H. L. Bridgewater
Locomotive & Allied Manufacturers' Association	London	G. R. Curry
Long Island University	USA	E. H. Behymer
Lusty, W. & Sons Ltd	London	J. Parkin
Medical Research Council	London	Dr Joan Faulkner
Napper Stinton Woolley Ltd	London	Miss A. E. Davis
National Institute of Science & Technology	Philippines	F. M. Yenko
Nestlé Company Ltd	London	Mrs D. M. Greenfield
Nigeria, University Library	Eastern Nigeria	Dr R. V. Athaide
Notley Advertising Ltd	London	D. A. Deas
Oxo Ltd	London	R. Barton
Philip, George & Son Ltd	London	P. N. Godfrey
Philips' Gloeilampenfabrieken NV	Holland	Th. G. Appelboom
Plessey Company Ltd	Towcester	J. B. Huffadine
Reed, Albert E. & Co. Ltd	London	Mrs P. P. Koster
Sankey-Sheldon Ltd	London	R. Martin
Scribbans-Kemp (Research & Development) Ltd	London	N. Wookey
Siemens Liaison Office London	London	B. Biessmann
Sierra Leone Library Board	Sierra Leone	J. T. Strickland
Smith & Nephew Ltd	Welwyn Garden City	F. Hirst
United Kingdom Atomic Energy Authority, Culham Laboratory	Culham	L. J. Anthony
Whitbread & Co. Ltd	London	A. C. Case
Wright Hargreaves Engineering Co. Ltd	Blackburn	G. Hargreaves

INDIVIDUAL

Name	*Location*
Biggs, F. P. G.	Crawley
Bruck, H.	London
Finch, D.	London
Hoather, Dr R. C.	London
Humphreys, M. J.	Liverpool
Illing, K. J.	London

NEW MEMBERS *contd.*

Lawrence, Miss L. C.	Australia
Lee, Dr J. M.	USA
Macdonald, Miss F. B.	London
Mason, Mrs R. Coin	USA
Newton, Mrs V.	London
Sleightholm, M. T.	Leeds
Troll, T. W.	London

SOURCES OF INFORMATION IN AUTOMOBILE ENGINEERING

W. I. VEASEY, F.L.A.
Librarian, Morgan Brothers (Publishers) Limited

IN 1862 a Frenchman named Beau de Rochas patented in Paris a four-stroke cycle engine, and although this original design was neglected and forgotten for many years its principle formed the basis for the phenomenal development of the internal combustion engine. In the intervening hundred years, whether we like it or not, the automobile has become one of the more important factors in our private and national lives. The early engineers, from Otto and Daimler to Lanchester and Ricardo, synthesized in their work the theory and applications of the machines they designed and built; but the last thirty or forty years has seen such a development in complexity of the machine and importance of the industry that it is no longer possible for one man, or group of men, to be in complete control of all phases of development. This suddenly accelerated progress is probably one of the reasons why engineers are not usually literature conscious and why the literature is even more uncontrolled and disorganized than in other subjects. The object of this survey is to show some of the inadequacies in the services and sources of information at present available to members of the industry in this country and perhaps to indicate some lines on which development in documentation might take place.

Certain sections of the public interested in the literature of automobile engineering are adequately catered for, or if the provision is at present less than adequate at least the organization exists for the satisfaction of their demands. The public library caters for the needs of the owner-driver by the provision of the type of literature listed in the *Readers' guide to automobile engineering*[1]; but some public libraries are, under subject specialization schemes, attempting to provide a more comprehensive service than this and these libraries require a much more detailed guide to the literature than the elementary, superficial *Readers' guide,* a guide that does not exist.

Technical colleges have a clear-cut level of interest but unfortunately no basic book or periodical list exists for their use: lecturers tend to use and recommend the few basic books they themselves used, with little concern for new material and with the emphasis always on the practical. Probably the most useful bibliography for the guidance of technical college students, tutors and librarians is the automobile engineering section in the Aslib *British scientific and technical books*[2]: some of the entries have been superseded by later editions and some of the editions quoted are not the most recent available even within the stated limits of the bibliography, but few have been superseded by different titles. However, for the use of both public libraries and technical colleges there exists a need for a standard booklist with annotations, and, equally important, a basic periodical list: having bought both *Motor* and *Autocar* the average public librarian has no idea how to start to choose between the remaining dozens of competing motoring journals; and how many technical college librarians have even heard of the invaluable UTAC *Bulletin*?

In this country there is unfortunately a clear-cut division between university training and industrial practice. There is a dichotomy between the pure science and applied technology of a subject and many a B.Sc.(Eng.) or even Associate I.Mech.E. departs for Coventry or Dagenham only to discover that not only has he to find his own methods for bridging the gap between his training and its applications but that he has no idea what tools to use to assist him in his difficulties. There is, we are told, no comparable gap in the training of technicians in the Soviet Union and in the opinion of many responsible people the prosperity, always precarious, of the British motor industry is due to the fact that the Russians have chosen to direct their tremendous effort towards prestige-building earth satellites rather than motor vehicles. This is a controversial point and not our concern here: our concern is for the fact that the young automobile engineer should have no training in the use of such bibliographical tools as exist, that skilled assistance in the use of these tools is so often not available, and that the bulk of the literature is disorganized and inaccessible. It is not sufficient to argue that scientists do not like to use the literature, that they prefer to telephone somebody, or rely on their memory, or their notes, or work it all out again for themselves. That is probably correct, but what is equally true is that nobody can learn to rely on bibliographies or libraries that are inadequate or non-existent.

A basic requirement is for a detailed survey of the literature of automobile engineering, a publication similar to Parke's *Guide to the literature of mathematics and physics*[3] (which book incidentally has many entries of interest to the engineer), but such a book does not exist although some attempts in this direction have been made. An excellent survey of general engineering was produced before the war by A. D. Roberts[4] but the very wide scope of this book and twenty years without revision have invalidated much of the work. More recent is Dalton's *Sources of engineering information*[5] but this is also out of date now and was in any case a regrettably unscholarly production for a university press. The arrangement of the book is most unsatisfactory, there is little annotation, entries are predominantly American with little regard for relative importance, there is a most haphazard selection from other countries, and there are few entries directly related to automobile engineering. The lack of good general surveys on this subject is underlined by the fact that by far the most useful guide is Walford's all-embracing *Guide to reference material*[6]: although this book covers all subjects the entries relating to engineering in general and automobile engineering in particular are of basic importance and accurately and fully described.

A short guide to the literature of engineering recent enough to be worthy of consideration is an article by R. T. Everett in *Aslib Proceedings*[7]. Mr Everett, who is the Librarian of the Institution of Mechanical Engineers, obviously knows his subject very well, but unfortunately he does not make sufficient allowance for a lack of similar knowledge in his readers. He mentions a great many items but supplies full bibliographical information about none of them. He gives little indication of relative values, there are some major omissions and some minor inclusions, but it is difficult to note the lack of the one or the status of the other. Mr Everett's article is important as it could bring unusual items to the notice of a librarian who already has some knowledge of the subject, but as an introductory guide its lack of bibliographical details, systematic arrangement and adequate annotation detracts considerably from its value.

The previous librarian of the Institution of Mechanical Engineers, Mr A. R. Stock, did a similar survey[8] which is more useful as there is a bibliography which includes some of the less well-known abstracting services, but the article ranges too widely and some of the entries are now out of date. Both of these articles suffer from the fact that they were originally intended for verbal delivery with consequent loss of precision, and although they contain much that is of value they cannot be described as model surveys of the literature.

The most recent survey is one devoted specifically to automobile engineering[9]. It is compiled by the librarians of three of the more important automobile engineering collections in the United States and theoretically should provide all that is required, but how dismally it fails. There is no annotation, there are major omissions, there are literally dozens of inaccuracies, some of the entries are, to put it politely, surprising: the document's only virtues are the full bibliographical details which are given, but so many of these are inaccurate that none can be taken for granted. A librarian trained in the subject might notice an occasional item hitherto unknown to him but, apart from that, the document is a rag-bag of oddments best avoided.

A short article on the subject is F. Machon's 'Information for engineers'[10]. This is not intended to be a complete survey, but it is in fact such a hodge-podge of miscellaneous references that it has little value at all. It is in fact a typical example of the sort of level on which information services for engineers tend to be conducted.

Given that no comprehensive survey of sources of information in automobile engineering exists, it is only possible to examine individually some of the different types of bibliographical tools and retain the salutary thought that probably no research worker would have all of these items available to him and he would, in the majority of cases, have no means of acquiring knowledge of the ones that are not available. In this connection mention must be made of Holmstrom's *Records and research in engineering and industrial science*[11]. This book cannot be used as a guide to any particular literature, but it is an excellent introduction to the structure of scientific research, types of material available and details of organizations concerned with engineering research.

It is not possible for any one library to have in its own stock all the information which may be required; it must therefore rely to a large extent upon abstracting and indexing services. There are several good services available to automobile engineers and, although all have one or more drawbacks, collectively they add up to reasonably good coverage of the subject. The coverage is by no means complete, but one must remember that there are a large number of countries which produce little or no original work on the subject. The main difficulties are produced by the fact that far too few libraries or firms concerned with automobile engineering subscribe to these publications and they are therefore not available to the people who need them.

The Engineering Societies library in New York is the largest engineering library in the world, and *Engineering Index*[12], an analysis and description of its accessions, is consequently the most important indexing service available to automobile as well as to other engineers. From a practical viewpoint the cost of a subscription to all the necessary subject divisions of its weekly card service is, for very many libraries, prohibitive, especially if one adds on staff time in filing and searching the cards and storage space for keeping them. A useful printed compilation is *Current engineering literature*[13] but this weekly digest of the cards received from *Engineering Index* is, for copyright reasons, restricted in circulation to the General Motors group of companies. The annual bound volume of *Engineering Index* is an essential for any library although its complicated alphabetic subject division can be difficult and irritating to use, and the abstracts less informative than could be desired.

Engineering Index is excellent for American material and for a certain amount from other countries. Western European material is very well covered by the UTAC *Bulletin*[14]. This inexpensive French abstracting journal includes books, pamphlets and periodical articles with entries which range from a title indicative of the subject to an informative abstract. Its indexing is apt to be erratic and it is, of course, in French but it is the most comprehensive European index devoted to automobile engineering available.

With both *Engineering Index* and the *UTAC Bulletin* it is nearly always necessary to obtain the original article and both publishers run a microfilm and photocopying service for this purpose.

An abstracting journal of a different nature is the Motor Industry Research Association's *Monthly Summary of Automobile Engineering Literature*[15]. This publication contains fifty long informative abstracts each month which in some cases obviate any necessity for obtaining the original; but the time lag is often considerable before an article is abstracted and many items have already appeared elsewhere. For example, abstracts of papers published by the American Society of Automotive Engineers often appear in the *SAE Journal* weeks before their appearance in the MIRA *Monthly Summary*. However, the retrospective value of this publication has been considerably enhanced by the appearance of an index to the years 1955–9 and an annual index for 1960.

These three publications are the most important abstracting journals for automobile engineers, but there are many other services which are still necessary if reasonably adequate coverage of the many countries of origin and related subjects is to be achieved. A list of abstracting services giving full details of subjects and countries covered, number of entries, etc., would be very useful; but existing lists published by the Royal Society[16] and the Special Libraries Association of America[17] are out of date and incomplete, and not sufficiently detailed and specialized for our purpose. One could mention *Applied Mechanics Reviews*[18], *Science Abstracts, Physics*[19], *Index Aeronauticus*[20]; the Research Association publications, PERA *Bulletin*[21], *Instrument Abstracts*[22], the very relevant but unfortunately confidential BICERA *Abstracts*[23], BCIRA *Journal*[24], the BNFMRA *Bulletin*[25], and many others mentioned by Mr Stock; *Metallurgical Abstracts*[26] and the *Review of Metal Literature*[27]; journals which include abstracts such as

Motortechnische Zeitschrift[28]; but the list is endless and only serves to demonstrate the need for a comprehensive detailed listing of abstracting services.

The extremely useful H. W. Wilson *Applied Science and Technology Index*[29] must be mentioned as it does include so much information although in some instances a tortuous mind and a detailed knowledge of American terminology are necessary before the correct subject heading can be found. One important fact that is often overlooked about this publication is that it does index several journals that are badly indexed by their publishers. A library possessing a file of the original journal does not necessarily possess a key to its contents; for example the very important American periodical *Automotive Industries* for several years published no index at all and is even now indexed very badly.

The many sections of the Russian *Referativnyi Zhurnal* are often cited as outstanding examples of abstracting journals and an important publication is the Ministry of Aviation's translation of the *Referativnyi Zhurnal, Mekhanika*[30]. This is a translation of the non-American or European entries and includes only items which are probably not available elsewhere, that is entries from Russia, China or other Asiatic countries.

This brings us to other problems; having seen a translation of a Russian or Japanese abstract entry it is then necessary to obtain the original and get it translated. It is this difficulty which mitigates the usefulness of several English-language abstracting journals of Eastern European and Asiatic literature. The *Polish Technical Abstracts*[31], the *Science Abstracts of China*[32], the *Journal* of the Mechanical Engineering Laboratory of Japan[33], all these publications, and others, contain a proportion of entries relevant to automobile engineering but the originals are difficult to obtain and expensive to translate. One must hope that the efforts being made by the National Lending Library towards both procurement and translation are fully successful, but DSIR policy in financing cover-to-cover translations of important journals lends itself to severe criticism. The most important Russian journal in automobile engineering is *Avtomobilnaya Promishlennost*; it was stated that a translation of this journal would be commenced in 1961 but there is no recent information on this point. Each issue contains some hundred pages of which perhaps twenty have some current importance, it seems very wasteful of highly skilled manpower to translate all this extra material before it is required. The reply to this criticism is of course well known, that nobody knows what may become important, but even so one would think that a translated abstract of all articles with a full-length translation when required would be a more economic use of skills which are at present scarce and expensive. In this connection it is interesting to note that a new journal, the privately financed *Polymer Science USSR*, is a translation of selected articles only from *Vysokomolekularnye Soedineniia*: a translation of *Avtomobilnaya Promishlennost* on those lines would be very welcome and considerably better than nothing.

There is of course some listing of translations in the *National Lending Library Translations Bulletin*[34] and in *Technical Translations*[35] and other places, but in the majority of cases these translations appear too late to be of much value. But the problem of translations is a huge one common to all subjects and can only be mentioned as another difficulty in the proper organization of the literature of automobile engineering.

The acquisition of more conventional material can cause its own problems. Periodicals are comparatively easy to locate. From the massive BUCOP[36] to the specialized MIRA *List of library periodical holdings*[37] very many lists exist to enable workers to locate original articles, but a major deficiency is the fact that these lists do not tell a potential borrower from which library he is most likely to obtain the item he requires. The Motor Industry Research Association has probably the finest holdings in the country of the publications of automobile engineering societies of other countries, the Société des Ingénieurs de l'Automobile *Journal*[38], the *Vereines Deutscher Ingenieure Zeitschrift*[39], the Associazione Tecnica dell'Automobile[40], the Society of Automotive Engineers *Journal*[41] as well as British publications such as the Institution of Automobile Engineers *Proceedings*[42] and many others. Files of these basic periodicals are essential to any automobile engineer who uses the literature of his subject but unless he belongs to a firm which is a member of MIRA, which is admittedly probable, these periodicals are not available to him as the library will not lend bound volumes to non-members. The corollary to this non-availability from certain libraries is the need for a guide to libraries holding stocks of automobile engineering literature stating their conditions of loan and the range of their holdings. The *Aslib directory*[43] attempts to do this but the entries under automobile engineering are incomplete and to some extent misleading: they include public libraries with very little specialist stock, omit many industrial libraries, and do not sufficiently emphasize the restrictions which libraries such as MIRA and the Institution of Mechanical Engineers place upon their loans.

Pamphlet material is notoriously the most difficult to identify, locate and acquire; it would be impossible to issue anything approaching a comprehensive list of pamphlet publications and the best that can be expected is for publishers to be more accurate in the listing of their own publications. A shining example in this respect is the American Society of Mechanical Engineers who publish an annual index to all their publications giving details of where they were published or abstracted down to the few which are available in reprint form only direct from the Society. In contrast the Society of Automotive Engineers index only those few publications which are reprinted in full in their *Journal* or *Transactions* and for additional listing it is necessary to turn to the annual volume of *Engineering Index*. The *Chartered Mechanical Engineer* always mentions the Institution of Mechanical Engineer's Automobile Division papers when they are presented, but it does not index them and it is usually about two years before they are reprinted and indexed in the Automobile Division *Proceedings*. Many similar examples could be quoted and it would be highly desirable that someone should trace and list the vagaries of different publishers for the benefit of users of engineering pamphlet material.

There is no comprehensive list of new book publications in automobile engineering and it is necessary to go to a variety of different sources of which library accession lists are probably the most important. The Ministry of Aviation *Accessions List*[44] is a most important source of information on new books, pamphlets and government publications on many subjects including automobile engineering. Another important library list is that of the Institution of Mechanical Engineers in the *Chartered Mechanical Engineer*[45]; this monthly list of new additions to the library is international in scope and covers books, pamphlets and periodicals. Its American counterpart *Mechanical Engineering*[46] is equally important as it lists new additions to the Engineering Societies library. In considering library accessions lists one never knows what gem the Science Museum list[47] is going to reveal; judging by this library's list of books on engineering[48] the important, the trivial, the esoteric and the popular stand an equal chance of being included in this all-embracing collection. In fact this great library, by the nature and range of its accessions, indicates clearly how much must be being missed.

Publishers and booksellers are naturally an important source of information on new books and most of them are only too willing to place libraries or others on their mailing lists. Some of them issue excellent book lists, for example Claude Gill Books Ltd[49]. Blackwell's Book Information Service on cards is an interesting new development which theoretically should be extremely useful, but the first card issues have contained some glaring errors, mainly of transcription, which need to be eliminated before it is possible to give unreserved praise to this venture. One could wish that publishers were less optimistic about their publications, a 'forthcoming book' may not appear for months (the important Elsevier dictionary[50] was 'forthcoming' for four years); a 'new edition greatly expanded' can easily be the old edition with one new chapter: publishers' sins against librarians are many and one can only mention them as a complication without being able to suggest a remedy.

Book reviews are essential in some cases before the quality of a book can be assessed and unfortunately reviews can appear in the most unexpected places. The British *Technical Book Review*[51] does not appear to be functioning very well and for a comparison of reviews it is necessary to rely on the American *Technical Book Review Index*[52]. This is a useful publication to a general library but its value is doubtful to a library or individual interested in one subject; there is a majority of American entries, the time lag is considerable and the number of relevant entries is too few. In automobile engineering it is important to remember that several of the abstracting services, *Engineering Index, Applied Mechanics Reviews,* the *UTAC Bulletin* all include books but these are abstracts and not reviews and do not attempt to give a critical assessment. It is therefore necessary to add the absence of speedy authoritative reviews to our list of bibliographical services absent in automobile engineering, or rather the absence of a service drawing attention to reviews when they do occur.

In this subject, as in many others, there is much bibliographical work done which is largely wasted because very few people know about it. Admirable bibliographies and surveys of particular aspects of the literature are produced, appear in various places, then disappear because they are inadequately publicised or listed. Every year the periodical *Mechanical Engineering* publishes surveys with long bibliographies on such subjects as engineering developments of rubber, plastics, bearings, lubricants and lubrication. Every year the American Society for Testing Materials publishes a long bibliography *References on Fatigue*[53]. The Fuel Research Station issued a bibliography on *Exhaust gases from internal combustion engines*[54]. The Motor Industry Research Association published a survey of the literature of *Aerodynamics of Road Vehicles*[55]. These are only a few of the very many comparatively obscure bibliographies and surveys which need to be collected, listed and publicised so that many more people can save themselves a lot of unnecessary work.

If this survey has revealed anything it has been the fact that very much work needs to be done if the literature of automobile engineering is to be made fully available. The obvious people to do this work are the librarians employed by the industry; but it must regretfully be stated that the industry employs very few librarians. In eight major automobile engineering firms, amongst the largest business organizations in the country, there is as far as is ascertainable only one chartered librarian or graduate in charge of an information service. In all directions the industry's library provision is well below the national averages[56]. There is therefore a picture of engineers untrained in the use of the literature, of the literature itself disorganized and multiplying, and of very few trained librarians to give the necessary assistance and do some of the outstanding work. It is probably not completely true of any industry that it is only as wise as its information, but even so there must be considerable apprehension concerning the future of British motor cars.

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NATIONAL REFERENCE LIBRARY OF SCIENCE AND INVENTION:

Discussion Meeting

London, 9th May 1961

A SPECIAL meeting was held in the Lecture Hall of the Royal Aeronautical Society on 9th May 1961 to give an opportunity, to Aslib members and others interested, for discussion on the National Reference Library of Science and Invention (NRL) in the light of the four articles which had been published in the March issue of the *Journal of Documentation,* vol. 17, no. 1, 1961.

The Chair was taken by Mr Leslie Wilson, M.A., Director of Aslib. Sir Frank Francis, Director of the British Museum, and Dr R. S. Hutton, Goldsmiths' Professor Emeritus of Metallurgy at Cambridge, opened the discussion.

PROFESSOR HUTTON said that, in planning the library, the potential user's requirements should be paramount.

He recalled how, in the years before the First World War, the Patent Office Library had been the foremost scientific library in the country, not only because of its extensive collection but also because of the bibliographical guides which it issued to help users. Since then it had steadily declined. Meanwhile, the output of scientific literature had accelerated on a vast scale. Other countries, particularly the USSR, had taken bold and imaginative steps to make this information readily available to industry. This country's efforts needed to be just as bold and imaginative though possibly on different lines. His contribution to the symposium providing background material for this meeting (published in *Journal of Documentation,* vol. 17, no. 1, March 1961), was intended to show that, in his opinion, the plans and intentions fell far short of what industry needed.

SIR FRANK FRANCIS agreed that there had been a decline in all the large libraries since the First World War. Now there was an opportunity for a fresh start. Proposals had been approved for an extensive development of the British Museum Library services costing £15–£20 million and it had been decided to make the National Reference Library of Science and Invention a part of this organization. Sir Frank said four main objections had been made to this arrangement and he would give his views on each:

1. The first objection was the physical separation of the two parts of the new library, one part on the Patent Office site on the South Bank of the Thames, the other on the British Museum site in Bloomsbury. In fact, the British Museum would have preferred to have the new library entirely on the Bloomsbury site, but use of the South Bank site would permit full operation by 1965, whereas development of the Bloomsbury site would not be completed until 1985.

2. Doubts had been expressed about the wisdom of putting a major science

library under the control of a library with a mainly humanistic tradition. One reply was that the British Museum now intended to bring itself up to date after 110 years in a building where expansion was impossible. The National Reference Library of Science and Invention would, in fact, be one of a number of departmental libraries of the British Museum whose work would be closely co-ordinated. There would be a separate science library in Bloomsbury devoted to the historical material; current material would be held on the South Bank.

3. Doubts had also been expressed about the proposed size of the NRL. It would be limited to 500,000 volumes because the appropriate committee of the Advisory Council on Scientific Policy thought that this was the largest number compatible with open access. In the original proposals, it had been assumed that ancillary material would be available from the libraries of the learned societies who were to share the site; this material would now be provided from the British Museum collections to which all material discarded from the NRL would be sent.

4. It had been suggested that the new library would not be able to provide the documentation services required by scientists. It was difficult to determine what was wanted by the scientists. Any service must be well used to be justified. Research was needed on this subject and provision had been made for it in the plans.

DISCUSSION

In reply to a question by Mr A. H. Holloway, ACSIL Library, Sir Frank said that some back volumes of periodicals would have to be relegated to the Bloomsbury site. The selection would be based on use. A shuttle service would bring this material to the South Bank by motor car when required for consultation by a reader.

Mr C. W. Hanson, Aslib, said the speed of the shuttle service was vital. Delay in material reaching the reader could be due to three causes: the time taken to locate material in the British Museum; time during which it was waiting to be loaded; and the actual travelling time. All these must be studied. He suggested that a conveyor system might be constructed through the Kingsway tram tunnel and under Waterloo Bridge. The possibilities of facsimile transmission and closed circuit television should also be studied.

Mr Barnes, Bristol Aircraft, suggested the use of a pneumatic tube conveyor system similar to that used by the Post Office.

Mr Agard Evans, Ministry of Works, said it looked as though we were to have a 1948 concept in a 1965 building.

The Chairman said that fears had been expressed that the space available to the library in the new building might be whittled down between now and 1965 to meet the needs of the Patent Office. Was there any guarantee against this and was there reasonable room for expansion on the site? Sir Frank replied that the size of the building was restricted by LCC planning regulations.

Mr A. Plumb, Library Association, advocated the use of closed circuit television. The chief drawback was the lack of a suitable page turner. This problem could perhaps be solved by transferring the periodicals to microcard. The great drawback to both television and facsimile was that they did not permit browsing. The importance of the patent collection must not be neglected.

People working on patent searches often needed to search the literature for fifty years back.

Sir Frank said that better facilities would be available to patent searchers in the new building.

In replying to questions from Mr R. C. Wright, RAE, and the Chairman, Sir Frank said that expansion upwards was not permitted by the LCC regulations. It had been hoped to include rooms for lectures and exhibitions but, in view of the limited space on the South Bank, these facilities and accommodation for investigations into the use of scientific literature would be provided in Bloomsbury.

Miss M. Gosset, AERE, asked about the relationship between the National Lending Library, the NRL and the rump of the Science Museum Library.

Dr D. J. Urquhart, DSIR, said that studies made by the staff of the NLL had shown that although the volume of scientific literature could be expected to increase rapidly in the coming years the volume that would be frequently used was likely to remain the same. The rest could be more economically stored outside London. What was vitally necessary for the new library was that planning should be based on facts and conducted by somebody used to thinking in scientific terms.

Mr E. W. Micklethwaite said that everything depended on the selection of material to be kept on the South Bank site. He felt that all the periodicals should be kept there. Was it not possible to extend the building by taking in land between the proposed site and the river?

In reply to a question from Mr Holloway, Sir Frank said that studies were being made to determine the reference services that would be needed; the result of these studies would be made public.

Mr J. G. Hall, Esso Research Ltd., listed four main requirements for a successful library:

adequate stock,
staff skilled to exploit it,
sufficient reputation and potential users,
volume of inquiries to occupy the staff.

A good reference service was necessary and he put in a special plea for the NRL to hold the fullest information on papers given at congresses.

Sir Frank Francis said there would be a general reference service provided at Bloomsbury. In reply to a question by Mr P. de Paris, Sir Frank said that a consultative committee to represent users was envisaged at a later stage; Dr Urquhart agreed, from his own experience, that such a committee could not help with planning the library but could only advise on general aspects of operation once the library was in being. At this point a number of speakers pressed the need for a first-class reference and information service to be provided by the NRL.

Mr Agard Evans said that one institution could not hope to answer inquiries in all fields. The NRL must be seen as part of the national network of information services.

Mr Liebesny hoped that a duplicate set of patents would be maintained in classified order.

Mr Jack Bird, Aslib, said he did not see how a documentation service could function at Bloomsbury when the most active literature was at the South Bank.

Sir Frank Francis, summing up, said that he was conscious that there was more than one way of doing a job and his mind was open to suggestions.

Professor Hutton, in reply, said that his fears had only been partly dispelled by what he had heard. The fundamental importance of the library to the application of technical knowledge throughout industry had obviously not been grasped by the policy makers in and near to the Government. He hoped members of Aslib would make every effort to create, at the highest possible level, a better appreciation of the potential value of the library to the economy and press for much greater financial resources than at present envisaged.

STATE OF THE ENGLISH EDITION OF UDC

G. A. LLOYD
British Standards Institution

THE importance of systematically indexing technical information in whatever form it is presented – books, pamphlets, technical reports, articles in periodicals, abstracts, etc. – increases every day with the swift advances of science and technology. But so also does the difficulty of maintaining any classification or indexing system that purports to be reasonably up to date in every field of knowledge, especially when it is a world-wide system like the Universal Decimal Classification (UDC), in which all modifications have to be approved internationally and are only authorized after a lengthy and often complicated procedure culminating in a rigorous final check by the Fédération Internationale de Documentation (FID) at The Hague. Admirable though this may be in theory, it has, in recent years especially, fostered far too much ultra-conservative – sometimes ill-informed – obstruction to legitimate, urgently needed revision proposals, or P-notes as they are termed. Partly as a consequence, publication of new sections of the full English edition B.S.1000, so greatly dependent on essential revision of terminology and practice in the English-speaking world, has proceeded much more slowly than if B.S.1000 had been a 'purely' British Standard; so much so, indeed, that many users must have despaired of ever seeing in print the sections relevant to their particular subject-fields!

Because the UDC is such an encyclopedic code and subject to so large a measure of international consultation and control, draft sections of B.S.1000 are not circulated for comment in the same way as Drafts for Comment of most British Standards, though this does not mean that anyone interested is deprived of the opportunity to contribute actively, still less of the right to make constructive comments, so long as he is aware that a given section is in preparation, or that proofs are available for inspection in the BSI library before final publication. Liaison between the editors and users has hitherto not been all that it might have been – the fault, perhaps, is bilateral – but sectional drafts, as they were prepared, have certainly been distributed to those known to be interested (even when unable to assist in drafting or translating them), and it is hoped to improve editor/user communication in the near future through the periodic issue of a UDC news sheet or an occasional progress review like this in *B.S.I. News* or *Aslib Proceedings*. To ensure this, and to speed up the work of drafting many urgently needed UDC sections, close co-operation between the BSI and Aslib (with its important technical groups) will be more than ever essential; once this is assured, and with the long-awaited full-time UDC officer and secretariat installed at the FID in 1962, there should be a distinct improvement in the flow of information about the UDC to users and more rapid progress in the publication of the full English edition.

Abridged editions B.S.1000A and B.S.1000B

For all UDC users, general and special, the Abridged Editions (B.S.1000A in English, or B.S.1000B trilingual German–English–French) provide not only the easiest and cheapest means of keeping in touch with UDC developments but also a balanced scheme for all knowledge and an indispensable 'backcloth' for classifying the wider relationships and ramifications of even the most (apparently) specialized subject. Subscribers to the official half-yearly cumulative *Extensions & Corrections to UDC* (obtainable direct from the FID or through the BSI) can follow recent developments in detail fairly continuously, but UDC users who do not subscribe to these Extensions and who wish to modify their filing systems at fixed intervals rather than by continuous adjustment, will be able to rely on an up-to-date edition of the Abridged English edition every five years or so, *i.e.* 1965 – 6, 1970 – 1 and so on.

A new 3rd edition of B.S.1000A, of which the radically revised and enlarged second edition appeared in early 1957, is due for publication in the autumn and proof copies are available for inspection in the Aslib and BSI libraries. Changes introduced since the 1957 edition are summarized on a single sheet, while in the schedule itself cancelled numbers, with relocations indicated, are printed in small type with asterisks as before; it is hoped that these features will facilitate the checking and correcting of users' existing files based on earlier editions.

Full edition – B.S.1000 and drafts (available or in preparation)

In addition to UDC 5 and 621.3, mentioned below, only the following sections (listed in the *British Standards Yearbook*) have been published to date:

622/623	Mining & mineral dressing. Military & naval engineering (1955)
669	Metallurgy – (1949)
678/679	Macromolecular materials (rubbers, plastics), etc. (1954)
69	Building: materials, construction, trades.

Several new or revised sections are, however, shortly due for publication:

5/59	(Mathematics & natural sciences) is being re-edited to bring the 1943 schedules, issued in three parts, up to date in a single-volume edition. It is expected that this will be published during 1962.
61	(Medical sciences), after many years of delay, is also in final preparation for publication – it is hoped, within the next year.
621.3	(Electrical engineering), following many years of work by the BSI panel and other groups abroad and a recent meeting in London (Sept. 1960), is to be issued in a new, completely revised form later this year – separately, pending completion of the revision of 621 as a whole.
77	(Photography & cinematography), also completely revised by a British/German group of the FID (BSI secretariat) should also be

ready for separate publication this year, pending completion of the revision of the remainder of class 7 (Arts & entertainment) – notably 71/72 (Physical planning and architecture).

Drafts for the following sections are obtainable from the BSI on request:

2	(Theology. Religion) – 1953
539.1 & 621.039	(Nuclear physics & technology) – 1959
543	(Analytical chemistry) – 1959, incorporating former 544/545
628	(Public health engineering) – 1961 new draft, with revised 628.1.
63/635	(Agriculture: machinery, farming, field crops, forestry, etc.) – 1959
66/662	(Chemical technology: chemicals, fuels) – 1959
7/72	(Arts, periods, etc.; physical planning; architecture) – 1958
77	(Photography & cinematography) – 1960

Drafting of further sections is in hand, priority being given to the following:

620/621	(Mechanical engineering), especially 621.7/.9 Workshop practice, of which a final revised draft is to be issued shortly, also as a P–note
624/627	(Structural and civil engineering)
629.1	(Transport, vehicle & craft engineering), especially Aeronautical and astronautical engineering, for which a combined new scheme is envisaged by Aslib Aeronautical Group and BSI.
636/639	(Animal husbandry, stockbreeding, produce, fisheries)
65	(Management), the recent FID revision of which is being translated into English for issue as a BSI draft in the near future.
663/668	(Chemical and associated industries) with special attention to Glass, ceramics, etc., 666, of which a new draft will shortly be issued.
677	(Textiles), of which a seven-year-old BSI draft has served as the basis for a very slow FID revision.
681.3	(Computers and other Data-processing machines), of which a final revised draft, replacing 681.14, will soon be submitted to the FID for P-note.

No work has yet begun on UDC class 3 (Social sciences), although an FID committee has begun revision and 32 has been almost completed.

SELECTIONS FROM THE RECENT LITERATURE

ALL ITEMS listed may be borrowed from the Aslib Library, except those marked *, which may be consulted in the Library.

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An operations research study of the dissemination and use of recorded scientific information, in three parts. I: Journal reading by physicists and chemists; II: The cost of journal publication; III: The effect of condensation on comprehension of journal articles. Cleveland, the Institute, 1960. vi,63 pp. tables.

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Introduction to Dewey classification for British schools. New York, Forest Press Inc., [1961]. 88 pp. tables. (Published for the School Library Association.) 15*s.*

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FEDERATION INTERNATIONALE DE DOCUMENTATION
Bibliographie de la documentation et de la bibliotheconomie. La Haye, FID, 1961. 48 pp. *gr.*

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Union list of foreign periodicals in the humanities in Finnish research libraries; compiled by Matti Liinamaa. Helsinki, the Council, 1961. xxi,504 pp. (Finnish, German, and English text.) 2,000 *Fmks.*

*GERMANY. Deutsche Akademie der Wissenschaften zu Berlin. *Institut fur Dokumentation.*
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Report of the Research Council for the year 1960. London, H.M.S.O., 1961. 65 pp. tables. 4*s.*

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Current holdings of Communist Chinese journals in the M.I.T. libraries; prepared under the sponsorship of the National Science Foundation. Rev. ed. Cambridge, Mass., the Libraries, 1961. [2],14 pp. *gr.*

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List of publications available to the public. Cumulation no.5, January–December 1960. Harwell, the Library, 1961. [4],117 pp. 16*s.*

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MEMBERS' ADVERTISEMENTS

The charge for advertisements in these columns is 4*d* per word, minimum 5*s*. An additional charge of 6*d* is made for the use of a box number.

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WILFRED E. GOODAY, ARSM, DIC, MIMM, FIL. Technical translation from French and Roumanian. 161 Rivermead Court, London, SW6. Renown 1912.

Appointments vacant

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LIBRARIAN required to take sole charge of the Department of Aeronautics Library. Applicants should hold, or be studying for, a recognized library qualification. Ability to type essential, and previous experience in a technical library desirable. Salary in range £450 to £750 per annum, depending upon age and experience. Applications to the Assistant Director, Aeronautics Department, Imperial College of Science & Technology, London SW7.

LIBRARY ASSISTANT (senior). Lady required for cataloguing and senior supervisory duties on the staff of EMI Technical Library. Applicant must have LA Registration Part A and preferably special library experience. Please apply in writing to Personnel Department, EMI Ltd, Blyth Road, Hayes, Middlesex.

INFORMATION OFFICER. The BIM wishes to appoint an Information Officer whose main duties will be to assist the Production Management Adviser in dealing with inquiries from member companies. The person appointed will co-operate closely with the Institute's Library and applicants should have had library experience, preferably in a library providing a service to industry, and should hold some recognized library qualification. Five-day week, luncheon vouchers, three weeks' leave, salary according to qualifications but not less than £700. Holiday arrangement honoured. Write to Staff Officer, BIM, Management House, 80 Fetter Lane, London EC4.

INFORMATION SECTION OF THE BRITISH STEEL CASTINGS RESEARCH ASSOCIATION has a vacancy for a young man or woman having a background of science or technology and a knowledge of one or more foreign languages. The work is mainly abstracting and literature searching. Good command of English necessary. Experience in special library and information bureau not essential. Write to the Information Officer, The British Steel Castings Research Association, 5 East Bank Road, Sheffield 2.

INSTITUTE OF OPHTHALMOLOGY (University of London) Judd Street, London WC1. Applications are invited for the post of ASSISTANT LIBRARIAN and EDITORIAL ASSISTANT (female, age 30–40 years), which falls vacant in September. Arts graduate preferred. Experience in both categories essential as is a knowledge of modern European languages and good typing. Commencing salary £800. Applications giving full details of education and experience to be sent with names of two referees to the Secretary at above address.

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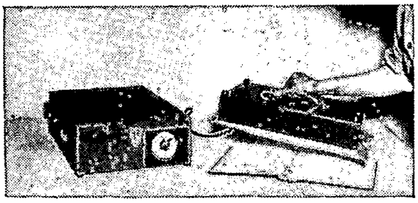

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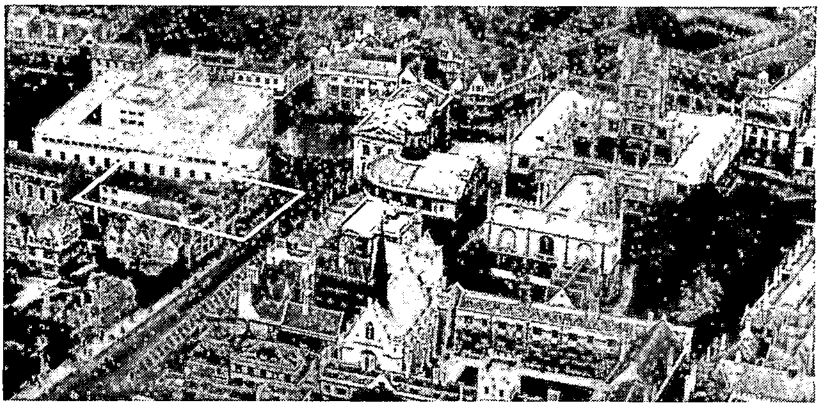

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Volume 13 **August 1961** **Number 8**

ASLIB CALENDAR

September

* WED.6 – SAT.16. FID conference at Caxton Hall, London SW1.
THUR.28. Course on handling Soviet and East European literature begins. See paragraph below.
THUR.28 – FRI.29. Scottish Branch information course in Glasgow.

October

WED.3. Fuel and Power Group meeting.
FRI.6. Technical Translation Group meeting at Aslib.
TUE.24. Winter meeting. Speaker: W. Ashworth, British Nylon Spinners Ltd.
WED.25. Fuel and Power Group visit to DSIR Research Station, Watford.

November

TUE.7 – WED.8. Course on work with patents and elementary patent practice.
WED.15. Northern Branch visit to NLL.
FRI.17. Technical Translation Group meeting at Aslib.

December

WED.6. Fuel and Power Group meeting.
WED.13. Winter Meeting.

* For sessions open to Aslib members see FID programme, available from Aslib.

Evening Course on handling Russian Literature

A course of lectures on handling Soviet and East European literature will be held at Aslib from 28th September to 16th November, inclusive, on Thursdays from 6.30 to 8 p.m. The lecturer will be Mr Anthony Thompson, M.A., F.L.A., who was the Aslib delegate to libraries in the USSR in January 1960.

The course will enable students to become familiar with the Russian alphabet, to transliterate, and to recognize the more common Russian bibliographic terms and scientific words. Other East European languages will be dealt with more briefly. The course also covers the organization of publication and bibliography in the Soviet Union and sources of supply of Russian material in Great Britain. The fee for the course will be 6 guineas. An application form is enclosed with this issue.

Northern Branch

The 14th Annual General Meeting was held in Durham on 21st April. Twenty-nine members attended. Branch officers were re-elected for 1961–2 as follows: Chairman, Mr G. H. Davison; Vice-Chairman, Mr J. E. Bolton-Allen; Honorary Treasurer, Mr F. Newby; Honorary Secretary, Miss E. Boddy, Edgar Allen & Co. Ltd, Imperial Steelworks, Sheffield 9.

The annual report for 1960–1 was unanimously approved and the Chairman then spoke of the future activities of the Branch, which will include a visit to the National Lending Library for Science and Technology in its new headquarters at Boston Spa, Yorkshire, on 15th November. Members wishing to make this visit are asked to let the Honorary Secretary know as soon as possible.

Aeronautical Group

One hundred delegates attended the tenth Annual Conference of the Group which was held at the College of Aeronautics, Cranfield, from 13th to 16th July. Among the speakers at the dinner were Sir Lindor Brown, President of Aslib, and Mr R. L. Lickley, Director of Hawker Aircraft Ltd.

Technical Translation Group

Two meetings have so far been arranged for the winter programme. Both will be held at Aslib. At the first, on Friday 6th October, Mr F. E. Wallwork, Atomic Weapons Research Establishment, Aldermaston, will give a paper on Latin-American Spanish. At the second, on Friday 17th November, Dr J. B. Sykes will talk about technical translation at Harwell.

Intensive Courses in Scientific Russian

Ealing Technical College will include two courses in scientific Russian in the 1961–2 programme of studies.

Course 1, for beginners, will cover alphabet, basic vocabulary, and grammar, and will be held on Tuesdays and Fridays from 9 to 11 a.m. Course 2, for those with some knowledge of Russian, is the second year of the course started in September 1960 and will deal with more difficult aspects of the language and give special consideration to individual requirements. Sessions will be held on Mondays and Thursdays from 9 to 11 a.m. The fee for each course is £4 10*s*.

A Russian Seminar will be held from 6 to 8 p.m. on Thursdays, and will include consultative sessions and discussion of advanced translations. Talks in Russian will be given by special speakers and students on subjects of current or cultural interest. Students who have completed the college courses may attend. The subscription to the seminar is £2.

Reservations for courses and seminar should be made as early as possible. Application forms are available from the Head of the Department of General Studies, Ealing Technical College, St Mary's Road, Ealing, London W5.

Hampshire Central Lending Library

The new Central Lending Library for Hampshire was opened in the Odeon Cinema Building, North Walls, Winchester, on Monday 3rd July. The library occupies the site of the former restaurant of the cinema. The whole of the county stock is available through the library and there is a reference and information section of directories, encyclopedias, dictionaries, timetables, atlases, and yearbooks. If inquiries cannot be answered by reference to the literature available, readers will be put in touch with a specialist organization which can help them. The periodicals section is reported to include a wide range of titles covering most topics in science and the humanities. The Library collects all British books published since 1959 on general European history, German history and travel, mathematics, statistics, botany, forestry, criminal law, town and country planning, and central and local government administration. Opening hours are 8.30 a.m. to 6.30 p.m. every weekday.

International Conference on Machine Translation

The first International Conference on Machine Translation of Languages and Applied Language Analysis will be held at Glazebrook Hall, Teddington, Middlesex, from 5th to 8th September. The conference is being organized by the Autonomics Division of the National Physical Laboratory, with European and American area committees under the chairmanship of Dr A. M. Uttley and Dr L. E. Dostert. The preliminary programme includes papers by authorities from England, the United States, Italy, France, Belgium, and Japan. The conference languages will be English, French, and Russian, and simultaneous translation into these languages will be provided. The conference fee of £6 10*s* covers also the cost of a copy of the proceedings, coffee and tea served during the morning and afternoon sessions, and a sherry party to be held on the evening of the first day. Inquiries should be addressed to Mr John McDaniel, Autonomics Division, National Physical Laboratory, Teddington, Middlesex; telephone Teddington Lock 3222, extension 138.

Microcard Editions

Micro Methods have announced that all microcards published by Microcard Editions, of America, are now available without additional charge from Micro Methods, East Ardsley, Wakefield, Yorkshire. The latest Microcard Editions catalogue will be supplied on request.

CIS

The International Occupational Safety and Health Information Centre (CIS)* now issues abstracts of occupational safety and health literature—including laws, standards, etc.—in English, French, and German, on 5 in. × 3 in.

coloured cards. Distinctive colours are used for laws and regulations, codes and standards etc., and films. The cards are coded by a faceted classification designed by D. J. Foskett (*see* Foskett, D.J. Documentation in occupational safety and health. *Revue de la Documentation,* vol.27, 1960, pp. 102–7). Cumulative subject indexes are published at regular intervals. CIS also undertakes to provide photocopies or microfilms of material which cannot be obtained direct from the publishers. The annual subscription rate is £14 5*s*. Further information is obtainable from CIS, c/o International Labour Office, Geneva, Switzerland.

* *Aslib Proc.* vol.12, no.3, March 1960, pp. 88–9.

Atomic Energy Information Film

The United States Atomic Energy Commission has available for free loan a new 16 mm colour motion picture entitled *Technical information services of the AEC.* The film surveys available unclassified atomic energy literature and how the information may be located, obtained, and used. It is of twenty minutes' duration and may be borrowed from the film libraries of the United States Embassies in London, Brussels, Buenos Aires, and Tokyo, as well as from the Commission's film libraries in the United States.

German Library Tercentenary

The German State Library in East Berlin will celebrate its 300th anniversary in October. The library was opened in 1661 as the Electoral Library of Cölln on the Spree. The programme of activities includes conducted tours of the Library, lectures and meetings designed to demonstrate the aims of the German State Library, and 'a forum relating to the legitimate claim of the German State Library to the return of its books dislocated to West Germany during the war and still withheld there.'

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Seismograph Service (England) Ltd	Keston, Kent	E. J. P. van der Linden
Southern Methodist University, Science Library	USA	S. G. Whitten
Sugar Technology Laboratory	West Indies	Sir John Saint
Tyrer, P. G. (Turbines) Ltd	London	P. G. Tyrer
Washington State University Library	USA	Mrs A. Connette
Welsh Plant Breeding Station	Cardiganshire	J. W. Ellis

INDIVIDUAL

Name	*Location*
Armitage, B., F.L.A.	London
Bolingbroke, Mrs V.	London
Ironside, Miss D. J.	Canada
Redwood, Mrs H. C.	London

Obituary

FRITS DONKER DUYVIS

IR. FRITS DONKER DUYVIS died at Wassenaar in Holland on 9th July after a long and increasingly severe illness.

Born on 30th April 1894 at Semarang in Java, now part of Indonesia, he was educated at the Technological University, Delft, taking his degree in chemical engineering in 1918. From 1918 to 1920 he was employed at the Netherlands Patents Office and from 1920 to 1929 he worked with the Rijksnijverheidsdienst which was concerned with the dissemination of technical information to the light industries. In 1929 he returned to the Patents Office becoming its President from 1944 to 1945. In 1947 he was appointed Vice-president, an office which he occupied until 1959. He held the honour of 'Ridder in de Orde van de Nederlandse Leeuw'.

In 1920, Donker Duyvis came into contact with Otlet and La Fontaine, the two founders of the Institut International de Bibliographie (IIB), who were seeking to set up an international documentation centre, an ambitious project, which proved impossible to realize for financial and other reasons. Duyvis however tried to reach this goal by another way: the establishment, in as many countries as possible, of national centres of documentation and he was instrumental in the foundation in Holland of the Nederlands Instituut voor Documentatie en Registratuur in 1921. The fact that at least thirty bodies of this kind are now linked in the Fédération Internationale de Documentation (FID), the successor of the IIB, is a tribute to his pioneering efforts.

In his work at the Rijksnijverheidsdienst and at the Patents Office Duyvis came to realize that the immense quantity of technical documentation, books, pamphlets, periodicals, and patents required by patent searchers in order that the originality of a proposed specification might be established was available for use by industry in the solution of its technical problems. It needed organization. Donker Duyvis, as secretary of a Netherlands Provisional Council for Documentation, requested and obtained from Otlet in 1920 permission to publish in Holland, in French, an edition of the Universal Decimal Classification (UDC) of which the 1908 French version was the latest. Work on this new edition, begun in 1923 under the auspices of the Commission de la Classification Decimale of which Donker Duyvis became Secretary, went on until 1931 and was carried out under very difficult conditions. Duyvis was responsible for the development of Sections 5 and 6 and also, almost single handed, for the editorial work—a veritable labour of love.

Though he devoted so much effort to the publication and extension of the

UDC he saw clearly that the system was not perfect and in 1932 he published a scheme for improving it, and in the course of his work at the Patents Office he was able to judge the need for developments in particular subjects so that theory was kept in step with practice. His views on revision have now been published as no. 11 in the series 'Studies in Classification' (FID).

In 1928 Donker Duyvis was appointed General Secretary of the Institut International de Bibliographie (subsequently in 1931 Institut International de Documentation and since 1938 the Fédération Internationale de Documentation) and continued in that office which, it should be noted, was then unpaid, until 1959. He was editor-in-chief of its journal, the *Review of Documentation*, and in some recognition of his great services he was appointed an Honorary Member in 1957. In 1954 and again in 1960 a part of the *Review* was issued, dedicated to him to honour the work that he had done for documentation. As General Secretary he was largely responsible, at the foundation of Unesco, for bringing to its notice the possibilities inherent in a close association between the two bodies.

Besides founding the Netherlands Instituut voor Documentatie en Registratuur (NIDER) in 1921 he was its Director from 1922 to 1929 and Vice-president from 1947 to 1961. From 1929 to 1930 he was Director of the Nederlands Instituut voor Efficiency and until his death a member of the editorial board of its journal.

Donker Duyvis was also active in another aspect of documentation; he was from 1945 until 1954 President of the Netherlands Committee for Standardization, a member of the Council of the International Organization for Standardization from 1950 to 1952 and Chairman of the Committee for Index Cards for Standards.

It is impossible in a short note to cover all the activities in the service of documentation in which Donker Duyvis took part. His life coincides with that of the use of the word itself, though Otlet and La Fontaine in 1895 called it bibliography, and he is a worthy successor to their ideas. He himself says 'The great ideal which inspired them . . . was to render accessible the totality of what is crystallized from human thought and to make of it a common treasure of mankind, serving to bring mutual comprehension and to build for peace by the co-operation of all men of goodwill of all nations'. Those who knew him will not forget his gentleness, his modesty and patience, and untiring energy; nor the encyclopaedic knowledge which he brought to his work.

He married in 1932 Miss P. G. L. Weber who with their son Hans survives him.

JOYCE LANCASTER-JONES

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THE IMPORTANCE OF CORRESPONDENCE
both currently and as a source of information

D. MACDOUGALD, F.C.I.S.
British Institute of Management

Third Conference on Business Records, London, 4th May 1961.

THE *Concise Oxford Dictionary* defines 'importance' as 'being important; weight, significance. . . .'

For the purpose of this conference, Aslib defines 'correspondence' as 'all incoming, and copies of outgoing, mail (including telegrams) other than orders, invoices, statements, and similar papers'. For my purpose I propose restricting the definition even more by including only correspondence in business—and *orthodox* business at that (love letters can occasionally mean big business, but I propose ignoring them as a source of information—at any rate for the purpose of this conference!)

My thesis is really self-evident. Business correspondence is obviously important, whether judged by weight (by which I imply volume) or significance: there is nothing in our present society to take its place.

Basically, any business enterprise can be stated quite simply as: obtaining a raw material, manufacturing that raw material into something else, and selling that product. The simplest form of business is the one-man affair, personified in the hawker who takes his wares from door to door—and that form of business seems to be much more widespread than one might imagine.

Next comes the small business necessitating an office of sorts. Its systems are usually quite primitive. I have myself only quite recently seen the old-fashioned spike in use in a small business employing something like thirty people. In this type of business, of course, records are relatively unimportant. This is the place where 'Old George knows everything'. He usually does, of course, but when Old George finally retires or dies, the whole process has to start over again.

Comparatively speaking, however, the small business is uncomplicated. Many of the transactions are verbal and many based on mutual trust. As the enterprise grows the whole process must become more complicated, and some system must therefore be introduced to provide for continuity.

But here I must utter a word of warning. Systems are made (or should be made) for man, and not man for the systems: yet how often, in the name of efficiency, we bow down to the great god System. Of course we must have system; our work would become chaotic without it. But it should be as the oil that enables the machine to operate smoothly: that oil is vitally important, but it is not the reason we run the machine. Likewise, system must be our tool, and never become the end in itself.

I sometimes wonder whether we realize how the sheer volume of correspondence has grown. I believe that the first Master of Posts was established as a Crown appointment in 1516; Cromwell transferred responsibility to Parliament when he appointed a Postmaster General in 1657; there are now in Great Britain and Northern Ireland about 25,000 post offices. In the last ten years alone the number of letters, postcards and small packets handled by the General Post Office each year has increased by 1,800,000,000, or rather over 21 per cent. In ten years! We have now reached the position (these figures are for 1959/60) where the post office handles 10,200,000,000 letters, postcards and small packets a year. On a six-day week that represents over 30,000,000 a day—in this small country alone.

The same kind of growth is reflected in the number of clerical workers employed in industry, which rose from 6.7 per cent of the working population in 1931 to 10.3 per cent in 1951. In the same period the number of typists in this country rose in number from 212,000 to 496,000 (*The Accountant,* October 1960)—134 per cent more typists in twenty years.

Also, of course, it has been established that the larger the business the higher, comparatively, are the administrative overheads. The ICI have established that the cost of a single internal octavo memorandum is 1*s* 5*d*—and that excludes anything for the time of the dictator.

I give these facts and figures to emphasize the importance of correspondence: although I do not necessarily mean the more the better. James Howell three hundred years ago said that 'letters are the soul of trade'; if he was right, I suspect that trade in this country is at present much too soulful!

The importance of correspondence as a source of information is, of course, rather different. Many of the items included in the figures I have given will obviously be circulars, football pool coupons, and so on—doubtless important to the senders (at least until the results of the matches are known), but of no value as records.

Euripides, in the fifth century before Christ, said 'to give me information is thy office'. So far as the modern business is concerned the principal source of information must obviously be correspondence, as defined for the purposes of this conference. Incidentally, how many executives seem to put Euripides' phrase into practice! Impressed in their youth with the maxim that they must at all costs keep their desks clear, they are wholly dependent upon their secretaries. I have seen a tycoon completely at a loss when his regular secretary is away.

For record purposes we must surely first define quite clearly what our purpose is, and then find the best means to record and file that information so that it can be readily available when needed. If letters are the soul of trade then filing is the memory of business, but how often is the filing office the Cinderella of the organization. With some filing 'systems', one would be justified in saying, 'Don't file it, I may need it again!'

It is odd how we in this country carry our propensity towards understatement to the lengths of boasting about our shortcomings; and nowhere is this more apparent than in the sphere of memory. We must all many times have heard somebody say, 'Oh, I've a shocking memory for names'—or faces—or numbers —or whatever else is under discussion. Possibly the explanation can be found here for our unconcern about filing.

One difficulty about using correspondence for information is that so few people can write clearly and logically, particularly when they have to dictate. There was a small boy who, when his teacher complained about the illegibility of his writing, said that if he wrote clearly she would only start complaining about his spelling. I feel that many people who dictate letters, if they were more precise, would show up the poverty of what they had to say. If only we could impress upon everyone the value of brevity. I will make one exception to my vow to exclude love letters from this address by reminding you of Sam Weller's advice that 'she'll vish there wos more, and that's the great art of letter writin'.' If only people would realize that the short letters get read and the long ones skipped.

We do not want more information, but better use of what information we have. I remember some years ago finding a senior clerk, a woman paid about £600 a year, who spent the whole of her time recording facts analysing details of outgoing mail. She quite literally did nothing else, and she spent the whole of her time at this. Months afterwards she could tell you what had gone out by each post on any one particular day. And I found that nobody had ever asked her for any single item of all those facts she had recorded. I put her on to a more productive job—incidentally nearly breaking her heart—and no one else in the organization ever realized that the facts were not still being recorded.

I have said that filing is so often regarded as the Cinderella of the organization. You all know how frequently it is the job given to the newly-joined junior, who is expected to use his or her native wit—if any—in doing the job. Only two weeks ago I heard someone use the phrase, 'From the most intelligent person on the staff down to the filing clerk'. The juxtaposition speaks for itself: in his mind at any rate the filing clerk was the *least* intelligent person on the staff. He was not referring to a particular person, but what he obviously thought to be the natural order of things: and I think he was only expressing a widely held view.

But this is a highly skilled job. There must be proper procedures, not only for storage but also for regular destruction, and only someone senior and intelligent can be given the job of destroying papers.

I feel myself that not enough papers are destroyed immediately after use. Far too many of us are hoarders; we put things to one side 'as they may come in useful some time or other'. Aren't our workshops, or garages, or sheds, complete evidence of this propensity we all have, to a greater or less degree. And we do the same with paper. So much paper could be destroyed the moment it has served its purpose: and it is not: and it lingers on to clutter up the files and make a problem for somebody at some future time.

We are all resistant to change. Do you remember the fuss when the need to endorse cheques was abolished in 1957? The dire results that were forecast have not come about. The same principle could be extended into many other fields. The human failings complicate any system. We all like to have our own private files so that we can refer to something quickly, and you find all over an organization duplicates of all sorts of things.

But, you know, none of us is blameless. A questionnaire was recently sent out to 135 members of Aslib: one of the questions was, 'What basic requirements do you look for when selecting staff to be employed regularly on the control and filing of correspondence?' Some of the answers received (from, I hasten to add, only a few members) would make your hair curl! Typical of these were, 'pleasant personality' and 'good mixers' (far too many filing clerks are good mixers but not, I suspect, in the sense meant by the person answering the questionnaire). One answer was, quite simply 'none': another wrote, 'general education and common sense: filing is not a specialized job, but is done by one of the office juniors'. These replies, although the small minority, would themselves justify Aslib in organizing this conference.

It is now time to get on with the real meat of this conference. I do not apologize for the somewhat discursive nature of these opening remarks. They were intended to be such and merely to set the widest possible stage for the specialist papers which are to follow.

HANDLING CORRESPONDENCE:

a survey of practices

L. H. BUNKER
Organization & Methods Division, H.M. Treasury

Third Conference on Business Records, London, 4th May 1961

IN order to compile and present to this conference a factual survey describing the existing procedures for control of current business records, especially correspondence, a questionnaire on the subject was drawn up by a working party and sent out to 135 organizations, including industrial and commercial establishments, Government departments, research associations and institutions, and local government offices. The questionnaire was designed to elicit information concerning the volume of incoming correspondence, the methods used for control and filing, and the kind of staff employed in handling it.

Of the 135 questionnaires issued, seventy were completed and returned. These fell into the following categories: industry 37, Government research associations 16, local government 7, learned societies 4, unclassified 6.

The working party's findings are summarized as follows:

ORGANIZATION

WE found that the term 'decentralized' when applied to the organization of a correspondence or registry service bears different meanings. It is clear, however, that the terms 'centralized' and 'decentralized' are not absolute but relative, e.g. a filing system could be decentralized to departments in a business and still be regarded as a centralized arrangement to those working in a section within the department. Another example: a central correspondence organization might well be organized so that although it was housed in one room, all the papers for each section of the business were physically kept separate in separate sets of files and fittings. In one sense this might be claimed to be a 'decentralized' arrangement, but if access to the central premises was inconvenient to the users in the sections, it would probably be more properly regarded as 'centralized'.

Correspondence files can sometimes be located in a central position in a block of accommodation so that each department in the organization adjoins one wall of the registry. It might be as though the promenade at the Royal Albert Hall represented the registry area and the various blocks of encircling seats the user departments. Such an arrangement would provide the advantages of a centralized and decentralized service at the same time.

It might be profitable if we all agreed on the definition of the term 'decentralized'. Our inquiries suggest that a decentralized correspondence or registry organization is one where the papers for each self-contained section of the business are physically housed together and are reasonably adjacent to the users.

Any definition poses difficulties. It may be said that few sections of files are absolutely self-contained; for example, a manufacturing section might well have to send its files to the central accounts branch, and so on. In those circumstances, however, the major user with the major responsibility ought to be easy to define. Again, difficulties of physical separation might be overcome by improved methods of communication, e.g. a wire carrier or pneumatic tube and so on.

The first point, therefore, that we have for discussion is in what ways do centralized on the one hand or decentralized arrangements on the other facilitate efficient control over current business papers.

DISCUSSION

Miss Clarke, ICI, advocated decentralized filing on the grounds that it was beneficial to have direct contact with the users. Other speakers favoured centralization, either of the files themselves or of control over them, mostly on the grounds that it was the only way of ensuring that all related papers were brought together.

THE FILING SYSTEM

The need for a strict filing discipline appears to be greater where subject filing predominates. Less than half industrial and commercial firms are in that category, whereas all the Research bodies are. Large and small firms and local authorities are equally divided between those who issue formalized instructions governing the filing system, and those who do not. Size of organization does not always indicate practice in this respect, for some of the largest companies are included with those that have no formalized instructions in force.

It is clear that in some organizations the framework of the filing system is determined by the nature of the business. For example, the classification of correspondence in a Sales Department would probably fall under the headings of sales territories and customers. At the other extreme, there are bodies which find it impracticable to classify most of their incoming papers because succeeding papers on the original subject may change the subject emphasis. In short, we have the impression that where the nature of activities or business is not static, pre-classification is more difficult to introduce and creates a problem of indexing.

Even in formalized decentralized systems practice appears to vary between a central control over the mechanics of the system and no such control either by direct supervision or by published instructions.

There also appears to be a very limited use in correspondence filing for classification systems originally designed for library purposes. Certain government departments tailor their classification to the individual sets of papers by composing classification headings from selected index headings. The advantage claimed for this system is that it enables every aspect of the subject matter of a set of correspondence to be included, whereas most predetermined systems of classification tend to emphasize the main subject to the exclusion of secondary and probably quite important subjects. We have formed the impression that there is general agreement that the main problem of classification of papers is in the field of subject filing rather than in case-papers, e.g. those of individual customers, etc. It also seems probable that subject filing is likely to provide the major source of business information not only for current but for subsequent use.

In the field of indexing, the Foreign Office have an interesting innovation, namely, a list of index headings which sets out in adjoining columns superficially similar subjects which should or should not be included. Other lists of index headings drawn to our attention introduce a similar discipline to avoid the misuse of synonyms and to ensure a reasonable standard of completeness.

Have delegates any practical suggestions or comments to make on subject classification and indexing as an aid to more effective control of correspondence?

DISCUSSION

Speakers were mostly in favour of filing by subject, though Mr Patrick preferred to file by correspondent and rely on the index for the subject approach. It was agreed that 'prefabricated' schemes such as the UDC were unsuitable for correspondence, and a tailor-made classification based on the work of the organization must be drawn up. It was difficult to decide how detailed the classification should be, but in any case much detail would have to be catered for by an index.

CORRESPONDENCE PROCEDURES

Letter opening

It is obvious that letters addressed impersonally must be opened centrally. The majority of large organizations encourage addressing of mail to departments and, in fact, in some cases to individuals, to facilitate speed in handling. Smaller organizations tend towards central letter opening, but letters personally addressed, even if not marked 'Personal' or 'Confidential', appear to be usually sent to the addressee unopened.

Registration

Registration of incoming mail is obviously going out of fashion, but one large organization registers by photocopying each piece of incoming mail. It also appears that where there is decentralized opening, there tends to be registration, but whether the two things are connected is not clear. Some organizations confine registration to important incoming mail.

Locating papers whilst in action

With the exception of Government departments and research bodies, most organizations irrespective of size do not operate arrangements for locating papers during the active stage. It seems probable that the nature of the business might be the governing influence. In short, one does not have an arrangement for finding papers which are not likely to be lost or difficult to locate. Practice does not seem to be related to the proportion of subject papers.

Photocopying

The availability to the filing section of photocopying facilities is fairly equally divided.

The conference might like to consider four points:

1. The question of central letter opening. For example, can adequate control be maintained over current correspondence if mail is not opened centrally, and if so, how can it be achieved? We might also consider such points as whether business can be facilitated if letters wrongly addressed were directed from a central point to the right section instead of going to the wrong addressee in the first place with the risk of extra

delay? Whether a central letter opening before normal working hours is the best way to speed the arrival of letters to the action point, and does opening by addressee necessitate delay when he is absent?

2. Is it necessary or desirable to register incoming mail, bearing in mind the disadvantages of delays on the one hand and any advantages of control on the other? Can such advantages be obtained incidentally through the filing system without registration?
3. How to locate papers when in action?
4. What role in control, if any, has photocopying to play?

DISCUSSION

There was considerable disagreement about the need for the registration of incoming correspondence, though even its advocates restricted its use to the most important documents. Several speakers favoured centralized opening, while others stressed the need for getting the correspondence to the individual with the minimum delay. Mr Bunker pointed out that in many cases the size of the problem altered its character.

CUSTODY, WEEDING, AND DESTRUCTION OF PAPERS

We have already observed that business correspondence is not merely a source of current information, but may well be of value at a later stage. The procedures and systems for current action, therefore, should bear in mind the later requirements. The conference, therefore, might like to consider whether correspondence should ultimately pass into a control outside the user section after the active stage and whether some central instructions and discipline need to be introduced at the outset to ensure that procedure during the active stage does not create problems later on.

Our inquiries indicate that, with the exception of government departments who operate under the statutory public records control, most industrial and commercial firms and local authorities do not appear to operate formal controls over the destruction of correspondence.

The conference might also like to consider the problem of weeding. Is it a matter to be left only till after the active stage, or can the problem be minimized by improved procedures during the active stage? Finally, what control needs to be exercised over planned destruction?

DISCUSSION

Many speakers pointed out that the difficulties of weeding could be avoided by control at the time the records were created. Some papers need never be filed, and others could be marked for automatic destruction at the end of a fixed period. Some speakers advocated microfilming the older correspondence, and two speakers emphasized from their own experience the value of older files. Dr Thompson suggested that a distinction should be made between 'stripping' individual papers from a file, and 'weeding' whole files.

TRAINING FOR BUSINESS RECORDS WORK

C. H. THOMPSON, M.A., PH.D.
Records Officer, The National Coal Board

Third Conference on Business Records, London, 4th May 1961

IT is inevitable when mentioning the topic of training for a particular task for which few facilities already exist that one meets immediately the reaction —'Is this really necessary; are we not tending to look upon every common or garden task—perhaps routine task—as one to be elevated to the rank of a specialist occupation?' Perhaps the case may be argued that this is another instance of the so-called modern craze for over-specialization.

Although there are many here today who are engaged in training such staff, and will make a contribution to the discussion, there are probably a few who may harbour a faint suspicion that the need for this training is somewhat exaggerated. I feel that I should therefore make at least a passing reference to the case for the need for training: the importance of the proper handling of these papers has already been stressed by previous speakers, who have also referred to the abundant evidence which proves that the papers are not being handled properly.

What exactly is the problem? Incoming and outgoing correspondence, and related informational papers must be so arranged that any individual piece of paper or a series of papers forming a transaction may be produced from a large accumulation of such papers. The basis of any satisfactory arrangement must be a code of subjects or topics which arise in the course of business, built up by understanding the organization of the body whose papers they are and also how business is transacted within that body.

The subjects themselves need breaking down into the various aspects of each subject, and even into particular applications of most aspects of a subject. Again, few subjects and less aspects stand clearly separated from all others; the fact that so many are closely related one with another calls for methods of linking these related subjects and aspects of subjects.

The more complex the organization—and complexity does not necessarily depend on size—the more difficult it is, first to build up this code of subjects, and secondly to operate it. Indeed, operating the code is more difficult than building the code; the crux of operation is the decision whereby each piece of paper arrives in a given position within an ordered accumulation of papers.

The successful arrangement of these papers therefore hinges on the countless decisions taken day in day out in relating these very numerous pieces of paper one with another and allocating them to a place within the framework of the subject code, so that once these decisions have been made another person can use the system to find these same papers without any delay or difficulty.

This brings us to the point that those who file within any firm have to make these decisions, and it is upon the soundness of their decisions that any filing system succeeds. And they are decisions which must be made promptly. In the field of subject filing there can therefore be no doubt that this work calls for the exercise of a good deal of intelligence and the possession of certain aptitudes on the part of those who file—this is no mechanical exercise.

The aptitudes required include a keen sense of arrangement, some capacity for accuracy in detail and a good memory. Those who cannot work methodically will never make good records and registry clerks, no matter how intelligent they may be. They must be able to take a point very quickly and be adaptable. An inflexible approach to this work is fatal. I am assuming, of course, that their standard of education covers an intimate knowledge of the alphabet, so essential for good indexing; but in practice this facility cannot be taken for granted.

Since this is a service, it is essential that they should have a good personality as they will have to be *persona grata* with colleagues at all levels of their firms. Finally, they must be able to work under pressure without any deterioration in the standard of their work.

How do management approach this aspect of their administration? What do they seek—or appear to seek—in recruiting staff who will handle their papers—their filing clerks as they usually refer to them? Do management appear to know what they want?

We constantly see advertisements which read something like these:

> 'Filing clerk, female, age under 18 years, in modern office close Tower Hill and Fenchurch Street Stations. Five-day week. Bonus, luncheon vouchers.'

The successful applicant is only required to be female and under 18—not very exacting qualifications.

> 'Filing clerk (female) for central record office. Age 16/20. Opportunity to learn telephone switchboard. Five-day week. Sick and pensions fund. Staff canteen, good salary.'

Again, the qualifications are surely minimal, but there is also the tacit apology on the part of the employer in expecting anyone to file by offering an opportunity to train for an apparently more difficult job.

If my experience and these advertisements are any guide, the answer to the last question is quite frankly that far too many managements in this country have not really considered the fundamentals of the problem confronting them; and that, therefore, they do not really know what they want. From their failure to solve this problem stem more of their organizational weaknesses than they care to admit—or perhaps more accurately, than they can recognize. It would be fair comment to say further that the present general view of management regarding 'filing'—including personnel management—is that this is fundamentally a routine mechanical task. If one starts from such a false premise it is impossible to build the correct image of the qualities to be sought in clerks who will handle their papers. Unless one starts with the right kind of material, even good training will only produce strictly limited results.

The starting point of any training programme for the proper handling of business records therefore is to tackle management levels. They must be made to realise that their papers—correspondence and informational papers—are the 'tools of their trade'. If these tools are blunt, in disorder and generally allowed to deteriorate in use, then the end product of management will be as poor as that of a craftsman working with tools in a similar condition.

Looked at from another angle, these same papers constitute the 'memory' of the business; and with the greater mobility of staff today at all levels it is important that this memory should depend on well-ordered papers and not on individuals. We all know what a handicap a poor memory is for an individual—and the same applies to a business where it will prove expensive.

A place must be found in the programme of every management course for the subject of record management—it is a *must*. It is not sufficient to deal with channels of communication, what information is required, how to present that information, etc., unless those under instruction are made to realize that the papers which they will create or cause to be created are not cared for by the fairies or guardian angels, who, in the future, will produce just what they want, immediately and in proper order and in good physical condition.

Let us assume now that management have absorbed this lesson—the necessity for the proper handling of their papers on the grounds of business efficiency and economy of administration. Our next hurdle is the belief, apparently firmly held, that filing clerks are not as other mortals, but that they are born in Heaven, the good Lord's gift to management; and that should any further training or experience be required this can be picked up 'sitting next to Nellie'.

Now, Nellie—who was probably chosen chiefly because she was what we will describe as 'a very presentable young lady'—is now not so young, though probably still very presentable; but the odds are that her sole qualifications as a filing clerk were gained by sitting next to Liz. Liz, bless her, was another originally chosen as being a very presentable young lady, and she probably taught herself how to file, acquiring habits (many of which were certainly bad habits) which she in turn transmitted to Nellie, who, herself, developed some others. Now, is it any wonder that the latest recruit to file papers starts his or her job with uppermost in the mind a picture of a five-day week, short hours, a pleasant modern office near a terminus or underground station, a bonus, luncheon vouchers—even in many cases the added inducement of the offer to train for another job, apparently more important as it requires training; whilst filing, it appears, requires no training. The recruit starts then without any clear conception of his or her true role in administration and, whilst on the job, acquires merely a host of bad habits which become the despair of the users of the correspondence and papers.

The two fundamental qualifications the recruit lacks are, first, a clear conception of the role which correspondence and informational papers play in administration (what is usually termed record management); and, secondly and equally important, a sense of purpose—a realization of the importance of his or her contribution as a records clerk to the efficiency of the day-to-day business of the firm. Neither previous education at school—even though the recruit has had a 'commercial training' in many cases—nor the interview for the appointment has helped the young entrant to business life to acquire either of these fundamental qualifications.

Here then is the starting point for the training of any clerk whose work will cover the management of a firm's papers. I use the term 'management' deliberately, since it describes more accurately than the word 'filing' the work of dealing with correspondence and other business papers. The action of placing enclosures within a file cover—'filing'—is but one of a host of actions properly required of these staff, and staff thus employed are more accurately described as 'records clerks' or 'registry clerks'.

If I may digress a moment, I should like to emphasize the importance of vocabulary—the terms used in connection with record management. The use of correct terms undoubtedly helps staff to build up, albeit unconsciously, an attitude of mind; and we must not underestimate this attitude of mind of staff to the tasks they perform—it goes to the root of our problems. For example, the terms 'dead records' and 'dead registry' gained an undesirable currency when referring in fact to 'non-current records' and to the central store for non-current records respectively. There is no such thing as a 'dead record' outside the premises of a waste-paper merchant; but the result can be that departments and registries hotly dispute that they are holding files and other records which should have been in the record store. They cannot distinguish between 'current' and 'non-current' records; they think that a record store is for records for which they have no further possible use—it has never occurred to them to question *why* such records should then be placed in a record store.

The term 'dead registry' can have an even worse effect. They begin to think that a record store is solely for 'dead files', forgetting that provision has to be made for non-current informational, or, as we call them, branch records, which are more numerous than registered files. This can lead to the planning of record stores in new buildings only large enough to take 'non-current' registered files, overlooking the bulk of 'non-current' branch records for which accommodation has also to be planned.

To return to my main theme, I think we should first get clear in our minds what sort of recruit we are seeking to whom we will give this training. Whatever the size of the firm, the recruit should be of at least good average intelligence and possess certain aptitudes, points I have made already. Without cavil, let me say that the standard of records or registry clerks should not fall below the best standards which a firm sets for its clerical staff, whilst some should be above the average standard. The latter are especially needed by small firms dependent on two or three such staff, whilst larger firms need them as supervisors. These entrants should also have reached a reasonable standard of education, which I will not attempt to define as time is short; but I should expect the average plus recruits to have obtained a few academic subjects at GCE level. In very large organizations, especially those dealing with many scientific or technical records, one would expect to find that the head of the service was of graduate level.

Whatever the firm, moreover, I consider that a period spent in handling the correspondence and papers of a firm is a first-class training for junior entrants. If they are intelligent, they learn a great deal more there about the firm's organization and methods of transacting business than by starting in a clerical post—really routine work—in a department or section. It is from these that a firm should then draw its more senior clerical staff, and from the more able, even junior administrative staff. I would go even further and say that the principles of record management should form an essential part of the training of any clerk

—and I do not exclude PAs and Secretaries—in fact, they require it more than most. The training need not be as extensive, particularly as far as practical work is concerned, as that given to those who will be records and registry clerks—unless they maintain private registries. However, all clerks must understand how records are managed in their firms and appreciate the part which this service plays in helping them to do their own job effectively and efficiently.

Having chosen our staff carefully, firmly refusing any offered by the Personnel Manager who do not fit into a department but who 'will be all right for registry work', we must give the same care to the syllabus for their training. This may be divided into two parts: first, the principles and practice of record management and, secondly, the equipment used in the job.

The principles of record management should give our trainees a broad view of the place of record management in administration—the service this renders in the transaction of business. The trainees must realize where they fit in in the scheme of things; here they acquire a sense of purpose and realize the importance of their work—they can help to make or mar the efficiency of the firm. They must then learn the organization of the firm and briefly how business is transacted. At this stage, the trainees must learn the distinction between action papers and informational papers—Branch records as we call them. This leads to the subject classification adopted for building up the files. Some time must be spent on the classification of papers and indexing as this is the foundation of their work. Thus far, the trainee receives, as it were, the academic grounding for the job.

On this grounding is then built up a knowledge of the mechanics of the job. First come the methods of handling incoming mail and outgoing mail. Many firms could look at these with great profit, bearing in mind that these methods should be streamlined for the firm's general advantage and not distorted to meet the idiosyncrasies of individual officers. Even attention to small matters of detail, such as preparing mail for franking, can lead to economy of staff time and help to avoid a sort of daily hell-let-loose for half an hour or an hour—a time then fraught with the danger of serious errors.

Then follows the method of raising files and the maintenance of files. The latter includes the mechanics of arranging papers—the enclosures—in files, including numbering them, the use of minute sheets, stripping ephemeral papers from files as these are serviced after being out in action and before returning them to their proper location.

At this stage the trainee is taught to follow transactions on files, not to file blindly a paper bearing the same file number as the file cover, for three reasons. In the first place, a typing error in the file number may otherwise lead to a paper being buried in the wrong file; when this happens and the paper is again required, one can pay one's money and take one's choice as to where it is, and the more so when the number of files is large. Secondly, and equally as important, the trainee must learn to note when the person taking action on a file is introducing a new subject to that file. This must be nipped in the bud, and a new file opened before the situation develops to the stage of two subjects on one file. And finally, when a file is serviced before being returned to the shelves it should be checked to ensure that the necessary action has been completed. This is a valuable check which helps to maintain the prestige—as well as efficiency—of a firm.

The mechanics of the job also include the handling of attachments to correspondence when these are too large or otherwise not suitable for the file. The use of annexes to a file for oversize plans, photographs, catalogues, etc., and the use of 'dummies' in the sequence of enclosures in the file itself to indicate their existence and location outwith the file. There is the need for copies to be made for other files, either by way of cross-reference or to rectify the crime of those who write about two distinct subjects in one letter or memorandum.

As part of the service to the user the trainees learn to operate a bring-forward system, both on request and upon their own initiative, as good registry clerks, like good secretaries, can do much to make good the deficiencies of those they serve.

This is only an outline of the first part of the syllabus designed to convince any doubters—if any there be—that the ground to be covered requires good material for training. The training itself must be practical throughout. The basis of the training in file maintenance, for example, should be a specimen file with a brief transaction, but one which will demand all the actions covered by file maintenance. Again, the importance of one subject one file can be demonstrated by giving trainees badly kept files to tidy up. They will recognize two or three subjects on such files, and separate the papers ready for two or three new files, deciding at the same time the file titles. They will also put on one side ephemeral papers which should have been stripped from the files previously, had they been properly serviced. Most organizations requiring to train staff can find such files without undue search.

Finally, the trainees must learn to play their part in sifting the records for preservation and destruction. With office accommodation and equipment as expensive as it is today, no firm can afford to accumulate in offices, files and other records which are no longer current. Part of the task of records and registry clerks should be to withdraw regularly records which are no longer current, and in conjunction with senior staff arrange for review periods to be placed on those which cannot be destroyed immediately. Properly trained staff will be well acquainted with the contents of files under review and can be of great help to senior staff who take the decisions. The syllabus thus covers the handling of papers from the time they are created until they are destroyed or earmarked for permanent preservation.

Within the short compass of this address, it is not possible to cover what procedures should be taught. I would, however, like to make two comments. Whatever procedures are adopted in a firm, they should be set out in a short manual of practice for use of the staff; this is essential in large and small firms. Secondly, all users should have a memorandum setting out briefly how the system works, including the common do's and don'ts. If users do not play the game according to the rules, they can wreck the best systems and be the despair of records and registry staff; and if their attention is not drawn to what they must and must not do, who can blame them. The users cannot be expected 'to pick it up sitting next to Nellie', any more than can those who have to operate the system.

The second part of the syllabus should cover the range of equipment available for record and registry work. We have moved a long way from chests, skippets, leather wallets, canvas bags and pigeon-holes—though the offerings of some equipment manufacturers today are nothing more than medieval or seventeenth-century equipment in an expensive modern dress—and no more useful. However, with the wide range of equipment available the more necessary it is that staff learn the advantages and disadvantages of each in the dispassionate atmosphere of the training room rather than from the persuasive salesmen of such equipment.

All equipment, including types of file cover, transfer boxes, etc., have their special advantages in a given situation and, what is more important for our purposes, their disadvantages. If you train staff for record work, they may be the only members of the staff who can advise on equipment if there is no O & M section in the firm. If they can advise dispassionately because of their training, they can prevent a firm wasting their money on new but unsuitable equipment which may have caught the eye of an executive. Likewise, if they understand their equipment, they will make the best use of any equipment installed by the O & M section.

Whilst it may be possible to have actual examples of equipment available for training, much can be done by the use of slides or strip film. These can also complement the use of actual equipment, as slides can illustrate different equipment in actual use, from which one can indicate clearly either the advantages or disadvantages in any given situation. I prefer to use slides, as these can be arranged in any number of combinations for particular purposes. Whilst on this topic, slides can also be useful as aids to the teaching of the principles of record management.

In this field I would also include instruction on the principles underlying the best layout of a record or registry room. Often I have listened to registry heads complaining about their difficulties, which I have noted at a glance stemmed largely from the layout of the room. Within the last few days, one complained to me that the stacks of shelving ran the wrong direction in the registry, when in fact it was the siting of the tables and the method of operating of the staff which were at fault.

Whilst it is not my task now to deal with the merits of particular methods of controlling the handling of correspondence, I feel I must make some comments, as the method a firm chooses has an important bearing on the question of staff training. It is fairly obvious that the more centrally controlled is the handling of correspondence and other papers, the greater the benefits to be derived from trained staff. In the first place, the staff needed are fewer, the turnover smaller, and the few can therefore be trained to a higher standard. The classification of the files can be uniform and the pool of information more readily tapped by all. The common user file, moreover, should ensure that the complete story of any transaction is on one file—as important a point as the dictum of one file one subject. Central control also makes possible the drastic pruning of duplicate informational papers, thereby ensuring that the common pool of information contains all that is required within the minimum of space.

Having examined in one large organization, with some sixty units as large as many medium to large size firms, methods of handling correspondence varying from room filing done by personal assistants and junior clerks through varying degrees of centralized control up to the full-blooded centrally controlled system, it is on the latter that I place my money. It offers the most scope for using properly trained staff and, given these, for the economic and efficient operation of a methodical record management programme.

At this point, I should like to return briefly to the users and in particular to management. It is with the latter that the responsibility for the efficient administration of our firm's business lies, and therefore once the die is cast, management must not only support, but must be seen to support, whatever system is introduced. Discipline amongst the users must be as high as amongst the staff operating the system. Records do represent money, and as no firm allows indiscipline in the handling of money, neither must it permit indiscipline in the handling of its correspondence and papers.

Finally, it may be useful to throw out suggestions as to who should undertake this training. Commencing with the entrant, I think that schools and colleges giving commercial training ought to lay the groundwork. The principles of good record management and its place in administration are universal. An agreed syllabus covering these could be introduced into commercial courses to a much greater extent that at present. How far the mechanics should be taught is more debateable. Briefly, I think much could be done here without meeting the criticism that entrants will have learned particular procedures only to meet completely different procedures on entering their first job. Whatever the system, to learn the basic mechanics of one system will enable staff to appreciate and learn quickly the mechanics of the particular system they meet in their first firm.

Large firms employing a number of staff to handle their records should have no difficulty in arranging their own training courses which would cover all the ground, including the particular methods standard in that firm. No doubt Aslib could advise those firms without trained personnel regarding syllabus and methods of training. They could also provide courses for the staff of smaller firms if there were sufficient demand. Such courses could cover the ground adequately, including practical training, although different firms may have somewhat differing detailed procedures.

To sum up, with high costs of administration today no firm can afford to muddle along without a proper record management programme and trained staff to execute it. As trained staff do not exist in numbers sufficient to go round, there is much training to be done. For this to be effective, the best possible training must be given to the best possible staff.

WHO SHOULD CONTROL CORRESPONDENCE?

a summing up

W. ASHWORTH, B.SC., F.L.A., A.R.P.S.
British Nylon Spinners Limited

Third Conference on Business Records, London, 4th May 1961

TIDINESS is a cardinal virtue to planners, and the planners of this conference no doubt saw my part as akin to that of a judge—neatly summing up with complete impartiality, yet somehow still contriving to give strong direction to the jury.

My task would have been immeasurably easier if the questionnaire had revealed the existence of a substantial body of good standard practice. There were almost as many variants as organizations co-operating. Little correlation was shown between the size or kind of organization and the method of attack of the problem, and examples can be found of every shade of control at all levels of correspondence volume. Further, the size of the problem can apparently alter its very character.

Nevertheless this conference has proved immensely useful by revealing the true state of affairs and by discovering those aspects of the problem of handling correspondence which would most profitably repay further attention. If recommendations have not been made on every point at least all the pros and cons of the different possible courses of action have been set out by the speakers, thus making it easier to consider the practice of any organization in relation to its precise local conditions.

I propose to resolve my own difficulty of summing up in what may seem rather a paradoxical way. I shall, in the light of what we have heard, give not one but several answers to the question 'Who should control correspondence?'

Firstly, the simple answer. At least we can be agreed that the supreme importance of correspondence has been adequately demonstrated—therefore the right person to exercise ultimate control is clearly the most senior person (managing director, town clerk, research director, or whatever he may be) in the establishment. He must control correspondence in the sense that he will be responsible for developing what Dr Thompson called the right 'attitude of mind'. Everyone must be made to realize the proper status of correspondence wherever it is touched. It must carry an odour of sanctity so that all will realize that failure to develop good practice in writing, reading, or filing letters is done at one's own peril. Management must not only support but be seen to support whatever system is adopted. The senior official will see that adequate funds, and the right staff are made available for correspondence management.

This official will also have to decide whether or not correspondence is to be centralized and will therefore need an answer to the question 'Who (that is, which department) should control correspondence?' Here, unfortunately, we are on less firm ground. In practice it seems that the larger companies and all local authorities decentralize responsibility, while smaller companies and research organizations tend to use central control. When an organization is built up of several distinct departments, especially in different buildings, which can reasonably, for this purpose, be regarded as working independently, then there would seem a good case for allowing a measure of freedom in the systems used, especially as some departments (for example, Sales) will mostly hold the case-papers of individual customers, and others (such as Research and Technical departments) will have letters containing much information which will justify indexing by subject. It is probably for this reason that the larger industrial companies decentralize control. However, in taking a decision to decentralize one must be honest enough to avoid merely taking the apparently easier course. A system to cover all the correspondence of a large organization will inevitably be complex, but it may well be, under the right conditions, much more efficient. In any case under decentralization it is still imperative to ensure that all departments operate as efficiently as possible though they may employ different methods. This probably implies the wisdom of issuing central directives on methods. For the smaller organizations and especially research bodies centralization would appear not only to be fairly common, but to pay dividends. The alternative, here, however, is only that of leaving the filing and any indexing of all correspondence in the hands of individuals who are trained for other skills, which is obviously unlikely to lead to success. The real trouble is that we do not know with any certainty exactly what the user really needs in each different type of organization. Aslib should endeavour to persuade one of the Management Associations to investigate all aspects of this problem to determine the true facts, and especially the relative costs of achieving various degrees of efficiency in filing compared with the potential losses in information where filing is less satisfactory.

Now finally there is the question of 'Who (what staff) should control correspondence?' Replies to the questionnaire on this point revealed what can only be described as a sorry state of affairs. At present the matter seems not to be taken seriously enough either by employers or by those bodies which ought to be providing a supply of properly trained records managers and assistants. I need not reiterate the many desirable qualities which today have been described as essential. What I should like to do, however, is offer a suggestion. The closest approach at present available to the personal aptitudes and desired training in indexing methods, combined with knowledge of the handling of information of all kinds at a high level, exists in staff trained for, and experienced in, library and information work. Though this will not apply to all types of organization under consideration I submit that in organizations with libraries, and particularly where the subject-content of correspondence is high, there may well be a very strong case indeed for vesting control of correspondence in the hands of the librarian.

Other organizations for which this cannot be a suitable answer show a real need, which this conference has demonstrated, for the recognition of a new career of records management, or registry control. In-service training can only meet part of the need and it is to be hoped that this conference will stimulate appropriate colleges and other bodies concerned with management training to fill the gap.

DISCUSSION

The discussion following Mr Ashworth's paper ranged over the whole subject of the control of correspondence. Mr J. W. Hood (Forestal Land, Timber and Railways Co. Ltd) questioned whether training of filing clerks was really necessary. He thought that if a consultant designed a foolproof system and the executives assigned the headings, filing should become automatic. A number of members disagreed since so much depended upon the way in which any system was interpreted and for this experience was needed. Dr Thompson thought that executives were the last people who should be asked to assign headings and the Chairman (Miss Barbara Kyle) pointed out that if executives were to assign file headings, it would need someone of high calibre to point out their mistakes!

Two or three members suggested that the Library and Information Departments were the obvious places to control records. Mr L. G. Patrick (Aluminium Laboratories Ltd) said that this was particularly true of research organizations. Technical correspondence was as difficult to index as periodical articles and needed the same skills as were taught in library training, but training courses made no allowance for this. Mrs C. C. Keevil (Cooper Technical Bureau) agreed that records should be kept in the Information Department, but said that they needed a special classification based on the business of the company and not a library classification. The Library and Records sections should work close together to give service to the user but it was valuable to the user to have the two sources distinct. Mr E. W. Heinemeijer (Shell International Petroleum Co. Ltd) said that in his country there was a fundamental reason for the central control of correspondence; the company was liable in law to keep proper records which had value as evidence.

On the topic of subject filing, Mr G. R. Muff (ICI, Paints Division) said that a skilled registry clerk would assign a subject heading to a letter on the basis of a cursory glance, but Dr Thompson illustrated some of the difficulties of subject filing. It was necessary for the clerk to be able to distinguish when a new subject was introduced. It was not really economic to have only cheap labour as one well-qualified person could do more work though, in a large registry, there was also a place for less able people for routine jobs provided that they were properly trained. Commander E. F. B. George (British Council), while agreeing that no system could wholly eliminate the need for training staff, thought that encouraging brevity on the part of those who created the correspondence would save time in filing.

Mr E. W. B. Micklethwait (Kilburn & Strode) advocated some standardization of paper sizes, but the Chairman pointed out that the difficulty in applying standardization to paper sizes was the lack of sanctions which could be used. Mr H. M. C. Harwood (Institution of Materials Handling) said he had tried to adopt the ISO paper sizes but could not get a stationer to supply them.

Mr A. E. Cornfield (British Petroleum Co. Ltd) said that he could only get the right calibre of staff for filing clerks if he called them Technical Records personnel. Male staff gave greater continuity. Mr Patrick agreed that it was urgent to raise the status of registry work and the Chairman pointed out that part of the trouble was that Management were ignorant of filing procedures. They were only aware of the final results and did not realize the difficulties which faced their filing staff.

There was general agreement that Management needed to be educated both as to the importance of filing techniques and of methods of controlling the volume of the records. Mr B. J. Bladon (H. J. Heinz Co. Ltd) suggested that letters should be marked by the originators as to whether they should be retained or destroyed. Mr L. H. Hooper (Eastern Electricity Board) said that the basic problem in weeding out records was one of confidence. Documents would only be weeded when staff knew that there would not be a 'witch hunt' if something went wrong. Mr D. MacDougald (British Institute of Management) agreed that it was necessary to train Management. If we could get rid of fear we should save heavily on records. Some basic aspects of the subject could be taught and if Aslib were to organize a study group it would have the support of the British Institute of Management.

Mr E. N. Dudman (British Petroleum Co. Ltd) warned members that it was wrong to rush into microfilm as a way of diminishing a heap of old files. A detailed survey had shown that it was more economical to store old files if at all possible. Dr Thompson said that there were two possible approaches to weeding. The first was to take a census of all files and to establish periods of retention; the weeding could then be done automatically by the registry. The second was to draw up guides on filing and to have a senior person in charge, capable of making *ad hoc* decisions. Lists of documents for destruction should be provided for the Management.

Suggestions were made as to ways by which Management could be convinced of the size of the filing problem. Dr Thompson said that a useful yardstick was the fact that an organization would spend a million pounds on staff that created records material but only £1,000 on staff to take care of it. Mr L. H. Bunker (HM Treasury, O & M Division) suggested that C. Northcote Parkinson should be persuaded to tackle the subject in his next book!

At the end of the discussion, the Chairman of the conference, Miss Barbara Kyle, summed up as follows: We have gathered at this conference that there is little consistency in practice among those responsible for the management of correspondence. Some use one method, some another, and it is not always clear how these are related to the particular needs of the organization. There is also very little information about comparative costs.

Efficiency in this work, as elsewhere, usually comes from powerful sanctions, in the one case security in the Foreign Office and the second case the pits coming out if compensation claims are mislaid. Perhaps we need such sanctions in all organizations.

A number of minor points have also been established, such as

1. that to operate a code is often more difficult than to make it, and this suggests there is a limit to what can be expected from sixteen-year-old filing clerks; that registration of correspondence on receipt may be a waste of time if the security *en route* from registration to addressee is not controlled;
2. one undisciplined person anywhere in the system can wreck the arrangements, and here again it is difficult for sixteen-year-olds to read the Riot Act;
3. selective weed killer before sending letters to registry is better than laborious weeding afterwards;
4. everybody employed in the management of correspondence should know the alphabet starting from any letter working backwards or forwards.

Finally, we know that we have to get the right people, the right equipment and then to give the right training, but we are as yet unsure what this training should be. Ought secretarial colleges to include it in courses for secretaries, or ought it to be taught on the job but with consistent principles and reasons for them?

Would it be useful for Aslib to follow up this conference with further inquiries aimed at particular types of organizations and perhaps finally organize courses which might produce efficiency in this extremely chaotic field.

Letter to the Editor

Dear Madam,

In his article 'Automation in indexing', published in *Aslib Proceedings,* vol. 13, no. 4 (1961), pp. 107–9, C. W. Cleverdon erred in his description of the indexing technique used in the preparation of *Chemical Titles*. The keywords are not selected in advance from a prepared list. Instead all words not to be indexed form the list given to the computer.

Two advantages are associated with this technique. First, far fewer words need to be stored in the memory of the computer. More important, provision is made for an expanding vocabulary. Were the other method used, one either would have to anticipate all new words or face the idea of losing useful index entries.

Sincerely,

ROBERT R. FREEMAN,
Research Associate,
The Chemical Abstracts Service,
The Ohio State University,
Columbus 10, Ohio, USA

12th June 1961

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WILFRED E. GOODAY, ARSM, DIC, MIMM, FIL. Technical translation from French and Roumanian. 161 Rivermead Court, London, SW6. Renown 1912.

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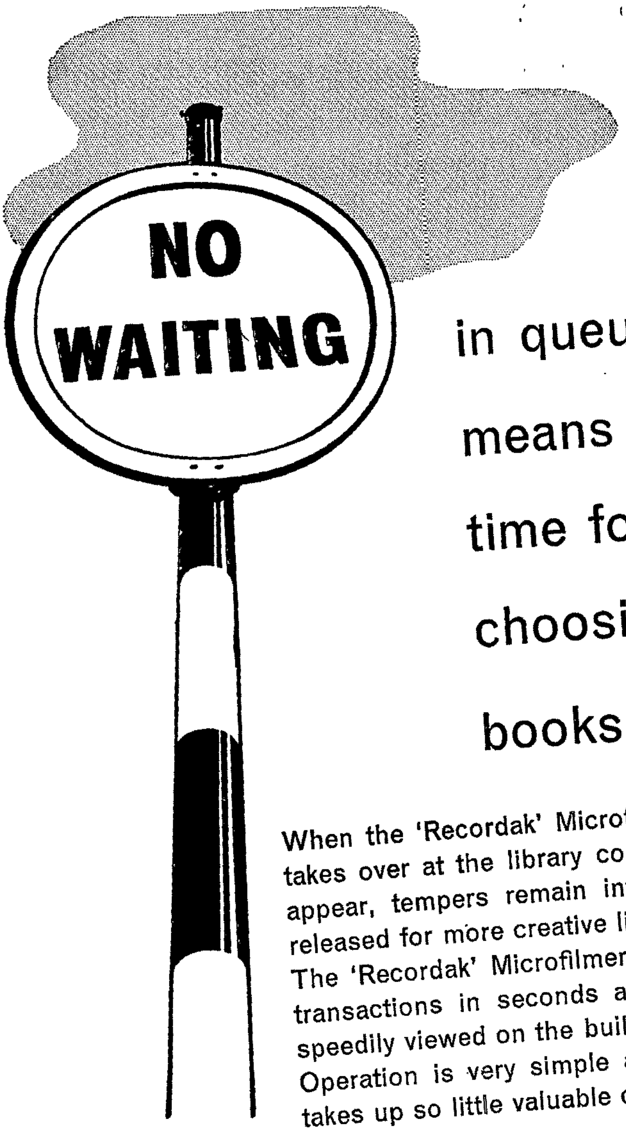

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ASLIB PROCEEDINGS

incorporating Aslib Information

Volume 13 September 1961 Number 9

ASLIB CALENDAR

October

WED.3. Fuel and Power Group meeting at Aslib.

FRI.6. Technical Translation Group meeting at Aslib.

TUE.24. Winter meeting. Speaker: W. Ashworth, British Nylon Spinners Ltd.
Midlands Branch Meeting at Birmingham University.

WED.25. Fuel and Power Group visit to DSIR Research Station, Watford.

MON.30. Senior introductory course on information work commences.

November

TUE.7 – WED.8. Course on work with patents and elementary patent practice.

WED.15. Northern Branch visit to NLL.

FRI.17. Technical Translation Group meeting at Aslib.

December

WED.6. Fuel and Power Group meeting at Aslib.

WED.13. Winter Meeting.

Senior Introductory Course on Information Work

An introductory course for graduates entering information or special library work, and other persons put in charge of library or information departments without previous experience, will be held at Aslib from 30th October to 3rd November 1961. Lectures will introduce students to the basic principles governing the handling of information, and acquaint them with some of the practical details of the operation of an information service or library. There will be a practical session and a discussion session, and visits to a number of libraries and information departments, including Aslib library and information department, have been arranged. The lectures will be given by the Education Officer, Mr Jack Bird. The fee for the course will be £10. Further details and application forms can be obtained from Aslib.

Course on Work with Patents

A course on work with patents and elementary patent law will be held again at Aslib on Tuesday and Wednesday 7th and 8th November. The lecturer will be Felix Liebesny, B.SC., A.L.A., F.I.INF.SC., F.I.L., Librarian, The British Aluminium Company Ltd. The fee for the course will be 5 guineas. Application forms and leaflets giving further details are available from the Education Officer, Aslib.

Midlands Branch

A meeting will be held at 6.30 p.m. on Tuesday 24th October in the Harding Law Library, University of Birmingham. Dr G. Brock, of the Department of Civil Engineering in the University, will speak on library services for the engineer.

On Wednesday 28th March 1962 the Branch will hold its annual general meeting at the Engineering Centre, Birmingham; the business programme will be followed by an 'any questions' session.

Scottish Branch

It is with regret that the Scottish Branch has lost the services of its Chairman, Mr Alec Liddle, who has left Scotland to join the De Havilland Aircraft Co. Ltd at Hatfield, Herts. The Vice-Chairman, Dr M. F. C. Paige, is filling the post pending election of a new Chairman. Mr Liddle was a very active member and was responsible for much of the preparatory work for the two-day course on information work to be held on 28th and 29th September.

The programme for the course includes lectures on library materials and how to handle them by Mr R. N. Beer, Librarian, British Hydrocarbon Chemicals Ltd, Grangemouth; on the importance of serial literature by Mr C. G. Wood, F.L.A., Librarian, Royal College of Science and Technology, Glasgow; on setting up an information service in industry by Mrs Margaret Spence, B.SC., Group Librarian, Cerebos Ltd, Edinburgh; on classifying and cataloguing by Mr W. Tyler, F.L.A., Head of the Scottish School of Librarianship, Glasgow; on service to the user by Mr J. R. K. Pirie, Librarian, National Engineering Laboratory, East Kilbride; and on professional literature by Dr M. F. C. Paige, Librarian, ICI Nobel Division, Ayrshire. The course will conclude with a visit to a special library where some of the principles expounded in the lectures may be seen in operation.

Electronics Group

A visit to the Institution of Electrical Engineers has been arranged for 5 p.m. on Wednesday 4th October through the kind offices of Mr J. E. Wright, Librarian. There will be a conducted tour of the main building and of the library, which houses one of the largest and most valuable collections of electrical engineering material in the world. Tea will be available at 2*s*. Numbers are limited and applications should be made before 22nd September to Mr N. E. C. Isotta, Ministry of Aviation, TIL 2, Room 008a, First Avenue House, High Holborn, London WC1 (Telephone: Chancery 6888, ext. 1242).

W. J. Bishop

We record with regret the death on Thursday 27th July of Mr W. J. Bishop, F.L.A., medical librarian, editor, and historian. Mr Bishop started his career in librarianship as a junior assistant in the London Library. Four years later he became Assistant Librarian of the Royal College of Surgeons, and in 1934 Sub-Librarian of the Royal Society of Medicine where he continued his valuable work through the war years. In 1946 he was appointed Librarian of the Wellcome Historical Medical Library until 1953 when he resigned in order to work full time on his own researches in medical bibliography and history.

Technical Information Course

A two-year, part-time training course in technical information has been planned by the Institute of Information Scientists and will be held at the Northampton College of Advanced Technology in London. The lectures will take place at 6.30 p.m. on Tuesdays and Thursdays commencing 26th September. The course is intended for science graduates but students holding Higher National Certificate or appropriate subjects at A level GCE will be admitted on merit. The fee for the whole course will be £30, or 5 guineas a term. Examinations will be held at the end of each year which will together qualify students for the certificate of the Institute of Information Scientists. Application should be made to Mr A. C. Leyton, Director of Liberal Studies, Northampton College of Advanced Technology, St John Street, London EC1.

UKAEA Industrial Group's Library Services

Mr J. Roland Smith has prepared a report of a long-term investigation of the library and information services of the seven sites comprising the Atomic Energy Authority's industrial group. The report is mainly concerned with the use made of the services and their growth, and with the degree of confidence the staff have shown in them. Copies of the report *The Library and information services of the industrial group 1951–52 to 1958–59* (DEG Report 340 (R)) can be obtained from HMSO at 4*s* 6*d*.

The Linguist in Industry

The Institute of Linguists has recently published a sixty-page, paper-covered report of the proceedings of the conference entitled 'The Linguist in Industry' held in London on 3rd March. The object of the conference was to bring together 'the users of language services and the professional linguists in order to clarify the problems at present confronting commerce and industry and to endeavour to solve them'. The report shows that the importance of accuracy in translation of commercial material was discussed in some detail. It was pointed out that school and university tuition in modern languages is irrelevant to the requirements of industry and that colleges of further education would help to supply this deficiency if personnel could be released for tuition. Translation rates and extra copies of translations were among a number of other topics discussed. *Report of the proceedings of the Linguist in Industry—a symposium* is published by the Institute of Linguists, 3 Craven Hill, London W2, price 1 guinea (10*s* 6*d* to members of the Institute).

Scientific and Technical Journals

With the support of the National Science Foundation, the Science and Technology Division of the Library of Congress is to make a study of scientific and technical serial publications throughout the world. The objects of the study are the compilation of a bibliography of sources on scientific and technical periodicals, and a census of current scientific and technical serial titles by country and by subject. Preliminary results are expected to be published in six months time.

American Documentation Institute Conference

The annual convention of the American Documentation Institute will take place from 5th to 8th November at the Somerset Hotel, Boston, Massachusetts. The programme includes a 'State of the Art Symposium' sponsored by the National Science Foundation, specialist sessions on advanced retrieval theory, documentation for professional societies, and a volunteer papers session on documentation and related subjects.

Further information regarding the volunteer technical papers can be obtained from Dr Richard H. Orr, Director, Institute for Advancement of Medical Communication, 33 East 68th Street, New York 21, NY. Further details of the conference programme and organization are available from P. D. Vachon, Literature Physicist, Melpar Inc., Applied Science Division, 11 Galen Street, Watertown 72, Mass.

Indian Conference on Documentation

A one-day conference on documentation was held in India on 28th June under the auspices of the Electronics Research and Development Establishment (LRDE) in Bangalore. The conference was inaugurated by Professor M. S. Thacker, Director General of the Council of Scientific and Industrial Research, under the Chairmanship of Dr S. R. Ranganathan. More than sixty delegates, representing about thirty research, scientific, and technical organizations in India, attended the conference, which discussed problems encountered in the Technical Information Centre of the LRDE. The speakers were Messrs D. A. Tellis, M. V. R. Rau, D. S. Negi, G. P. Sikka, and Cdr B. N. Srinivasan. The proceedings of the conference may be obtained on request from the Director, Electronics Research and Development Establishment, Post Box 108, High Grounds, Bangalore 1, India.

Documentation and Information in Chemistry

A meeting on scientific and technical documentation and information in chemistry will be held on Thursday and Friday 19th and 20th November in the new Casa delle Associazioni Scientifiche e Tecniche (House of the Scientific and Technical Associations), 10 via del Politecnico, Milan. The meeting is being organized by the Italian Chemical Society—Lombard Section, Italian Society of Pharmaceutical Sciences, and Italian Association of Chemical Engineers, and sponsored by the International Union of Pure and Applied Chemistry (IUPAC) and the Federation of the Scientific and Technical Associations of Milan. Attendance will be limited to some fifty to sixty specialists and will be by invitation only, with the exception of the inaugural session which will be public. Subjects to be discussed during the meeting include publication of documents, documentation and information organizations, current and retrospective bibliographies, and automation in information searching. The Secretary of the Meeting is Dr Luigi Satta, c/o Soc. Montecatini, Largo Guido Donegani 1–2, Milan.

Scholarships for Study in Special Librarianship

The Special Libraries Association is offering three $1,000 scholarships for the academic year 1962–3 to be used for graduate study in special librarianship leading to a degree at an accredited library school in the United States or Canada. The scholarships are available to graduates working in a special library, or with experience in a special library profession. Qualifications are a definite interest in, and aptitude for, special library work, a sincere intent to contribute to the profession, high scholastic standing, financial need, and provisional admittance to an accredited library school in the United States or Canada. Application forms may be obtained from the Executive Secretary, Special Libraries Association, 31 East 10th Street, New York 3, NY, and must be returned by 15th February 1962 to the Chairman, Scholarship and Student Loan Fund Committee, at the same address.

TECHNICAL TRANSLATIONS:

making the master

J.B.REED, B.SC., F.R.I.C., F.I.INF.SC.

Library & Intelligence Section, Department of Scientific and Industrial Research

Technical Translation Group meeting, London, 28th April 1961

MY excuse for offering anything to this discussion today springs from some remarks that I made in a paper to the Aslib Technical Translations Conference of January 1960.* At that conference we were discussing co-operative action and how we could promote and extend it. I ventured to suggest that the problem of making up translations was one of the current impediments to the growth of co-operation in translation. Further, I suggested that there should be exchange of experience and possibly an assembly of information about the various vogues amongst information sections so that we might be able to arrive at one or two useful, perhaps simplified, recommended procedures.

My concern here is not with the problem of how to make copies in number—whether for instance, we should stencil or use offset litho or what not. It is with what is the best way to produce a single, satisfactory, and complete, English version of a foreign paper for use and possibly for copying. Perhaps we need to discuss just how high on the quality scale we should aim in the final make-up: whether, so much money having been spent on translating, we—and the user—ought to be prepared to accept an inexpensive, final format not very far up that scale.

Here, I want to poke in a very true, if somewhat over quoted, dictum of Faraday that there are three stages to a useful research: to begin it, to complete it, and to publish it. Faraday may have intended to say something complete, for its own sake. He may, however, have intended to emphasize that publication was a vital stage, sometimes slightly overlooked. I don't know which. I think that we, on our part, are entitled to say that there are three stages to making a useful translation: to translate, to edit and to make up in a properly usable form. The importance of the first stage is self-evident. Unfortunately we may tend to skip the second stage because it can aggravate the difficulties of the third. The third stage, I believe, we tend to dodge or scamp, although there are extreme cases in which final production does seem lavish.

May I, here, make a brief comment on the second stage, namely editing, although it is not strictly part of my subject. G. A. Boutry remarked in a recent article of his in the *ICSU Review* that 'the correct translation of scientific papers is one of the worst problems in the field of intellectual exchange'. That remark seems to vindicate completely any insistence that proper technical editing is an indispensable stage in making a useful technical translation. In these days of many translators with little or no technical background, plying for hire at attractive technical rates, technical editing is vitally necessary. It is desirable even when a translation is the product of a good technical brain with sound language facility.

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* See *Aslib Proceedings,* vol.12, no.4, April 1960, pp.158–66.

Returning to our main theme, would any of us jib seriously at the view that every translation which is made ought to be rendered up into a format that is conveniently usable to the user? This is fundamental to a proper service to the user and any aid that such a practice gives to co-operative exchange of translation, although important, is only supplementary.

The complexity of making up for use obviously depends upon the complexity of the parent text. Sometimes this has nothing in it by way of special symbols or graphic material. Perhaps some people are lucky enough to have nothing but that sort of item to cope with: there is no problem. But what of a paper on say, some recent research on ship design? Here we usually have a text that is rich in symbols from alpha to omega and adorned generously with elaborate equational groupings as well as graphs and other figures. Such papers are, of course, difficult for everybody, the translator, the editor, the making up expert and the user. The translator is the most fortunate because at least he has something continuous upon which to work. The editor is decidedly less fortunate because he is most rarely offered anything complete and continuous. It is quite customary, for example, for numbered equations, figures, etc., to be left for scheduling in an appendix.

There is one very ugly practice that sometimes creeps in with these difficult papers. An information unit wants, let us say, three or four copies of the translation for eventual, internal use. It asks the translator to produce a typed text with three carbon copies, inserting in all four copies (usually in manuscript) all the special symbols occurring in the lines of text but inserting key numbers in place of equations standing out from the text and likewise graphs and figures. In one fell swoop all problems are by-passed—except, may I point out, those of the translator and the user. The more complex the original paper the greater is the advantage of this practice to the information unit, the more serious are the difficulties of the user because texts are not edited nor continuous, and the greater is the labour of the translator—who, normally, greatly irks this task even though he may be paid translating time-rate for the penwork. I have said, more advantageous for the unit—but there is one job that does fall upon it and that is having to check the four copies individually.

I have no doubt whatever that full and proper making up is an essential duty that all information units should accept. It is just not good enough to offer users texts with special matter scheduled in appendices. Units should moreover be granted facilities for doing it—these do not need to be highly elaborate. It is not, as I see it, necessary for either a mathematical typewriter and special typist or for drawing office facilities to be available on any serious or wide scale. We need to think how we can make up translations better and more easily.

It is probably very widely accepted that in the absence of special typewriters and their special operators the most practical way of transferring special symbols, equations, graphs, etc., from a foreign language original to a final or master copy of its translation is by a cutting-out and pasting-in procedure. A common practice is to make a typescript in which spaces of the right size are left in the right place in the text to receive cuttings of the original.

There is an important virtue inherent in the practice of utilizing cuttings from the original. Whenever special matter is copied by pen or typewriter it must be checked. When cuttings are used this is entirely eliminated. There is however one absolute necessity to success, especially if the pasted-up master is to be copied, and that is to have a first class photocopy to cut up. Incidentally, we have so far found no process to equal the old reflex, dark-room process using a fast paper and bath development, etc., for giving the necessary quality.

In our DSIR Library we have been experimenting with the possibility of reversing the paste-up procedure. That is to say pasting blocks of text on to a photocopy of the original instead of pasting cuttings of the latter into a spaced typescript. We have not gone far with this, but on the whole we think it easier and more satisfactory.

We had observed with some translations from German that we happened to be handling, that the type area of the English translation in single-spaced, Elite face was just about twice that of the original German text in 10 point. Therefore we made the length of line in the English typescript twice that of the German print. The result was that a paragraph of English had the same column height as the original paragraph of German, and paragraph strips could be cut and laid exactly over the text on the German original leaving intervening mathematical or graphical areas unobscured. This worked out well in cases where the page of the German original was two-column in its format (two columns 3½ inches wide): a photostat page could then be cut down its middle, and each half mounted on a separate foolscap backing sheet to receive the overlays of typescript. Needless to say, the translator had been instructed to retain the paragraphing of the original in his translated text.

There were at least two advantages from this procedure. First, the typist was asked to produce simply a straightforward block of single-spaced typescript between a given 'tram-line' width. Apart from accuracy, she had to attend only to keeping to the correct paragraphing and to leaving gaps in the lines to receive manuscripted symbols that occurred in the lines of text. The job of leaving spaces of given size at given points to receive cuttings disappeared.

The second advantage, still more important because it helps the user, was that the page layout of the final translation copy corresponded closely with that of the original. This meant that when the user encountered an obscurity he could find the relevant spot in the original without difficulty.

When the page format of the original is not double-columned, pages tend to be rather smaller, but unfortunately they tend also to carry more flowing of text around graphic material. In one instance we were able still to make up a 'master' within the width of a foolscap backing sheet, but we had to expand downwards by cutting the photostat into one or two strips and mount these on the backing sheet with a few intervening lateral gaps before overlaying the strips of text.

So far our experiments have been only with German texts. It will be very interesting to see how we come to fare with translations from other languages and originals in other formats. Clearly the relation between respective type areas of typeset original and translated text will depend upon several variable factors including the compactness of language both in the original and in the translation.

One minor trick that is useful when marking special symbols into lines of text is to do this in red. This facilitates checking: colour disappears into black in any subsequent photocopying.

There is one further procedure which I should like to mention. It is relevant when one or only a handful of final copies is required. It is to have the master microfilmed and the copies 'blown up', as required, from the film. This is just as cheap as direct photocopying—if not in fact cheaper—but there are three other advantages: no blurred areas occur at the boundaries of the pasted on cuttings; microfilm is a convenient form in which to store translations; and producing an extra copy if required, later on is simple.

I will conclude as follows.

The proper making up of technical translations is relevant to the fullest use being made of translated information: it is relevant also to the fullest use being made of existing translating resources, which, for a long time to come, seem likely to be decidely less than the world really needs. Thus it is important.

But there is, in making up translations of highly technical papers, a problem to be met and there ought to be some concerted attempt to ease the problem. I suggest that this should begin at once with exchange of experience amongst people like ourselves.

I have now thrown a very tiny piece of experience into the common pot and I very much hope that others will follow, perhaps more substantially, here, and hereafter.

REPRODUCTION OF ILLUSTRATIONS FOR TRANSLATIONS OF TECHNICAL ARTICLES:

with particular reference to photo-offset-lithography

MARTIN WRIGHT

Secretary, Translation Service, The Iron & Steel Institute

Technical Translation Group meeting, London, 28th April 1961

PHOTO-OFFSET-LITHOGRAPHY is suitable for both half-tone photographs and line drawings.

The method described here is used in the production of many BISITS translations because it gives the best results (except for photographic prints, but they are too labour-consuming as at least thirty copies are required), it is reasonably cheap and the plates are easily stored for re-use if necessary. To save trouble and expense, all the illustrations are usually grouped at the end of the translation, but for the convenience of the reader the captions are usually put either on the same page or on the facing page.

The first step is to plan the layout (Fig. 1). This may be done by measuring the illustrations and drawing rectangles of the same size, or by tracing them on semi-transparent ('flimsy') paper. If two pictures can be photographed at once this saves time and money, since small photographs are proportionately more expensive, but their arrangement on the printed page may not suit the layout on the quarto or foolscap of the translation. Occasionally one can save a page by fitting in one or two illustrations out of order, but this is inconvenient to the reader and should not be done unless it is necessary to count every penny. Leave at least half an inch all round each figure so that the negatives can be handled—and for legibility.

Now prepare the illustrations themselves. Cover up (mask) everything which is not to be copied, with pieces of opaque white paper. These are attached with a little rubber solution which is placed preferably in margins and not on the text; when the white paper is being removed afterwards the rubber solution can be dissolved with benzine or most lighter fuels, but care must be taken not to peel off the top surface of the printed page with it. There is no need to cut out squares of exactly the right size; just put four wide strips of paper round each illustration. Underneath each one write or type 'Fig. 1', 'Fig. 2', and so on. It is also possible to put the English captions there, but probably easier to put them on the facing page. It is useful also to put the reference number of the translation above the illustration which will come at the top right-hand corner of each page (Fig. 2).

The figures are now photographed and the negatives cut to size (over a light-box), pieced together according to the layout, and attached ('stripped-in') with opaque adhesive tape. Any chinks of light or blemishes in the negative are painted out, and the negative is ready for printing down on to the sensitized plate (aluminium plates give better results and longer runs, but paper ones are satisfactory). An ordinary contact print is made on this plate which is a positive, i.e. right way round and legible.

Printing is by the offset-litho process, in which the image on the plate is inked, the ink is transferred on to a rubber roller or 'blanket' and from there to the paper.

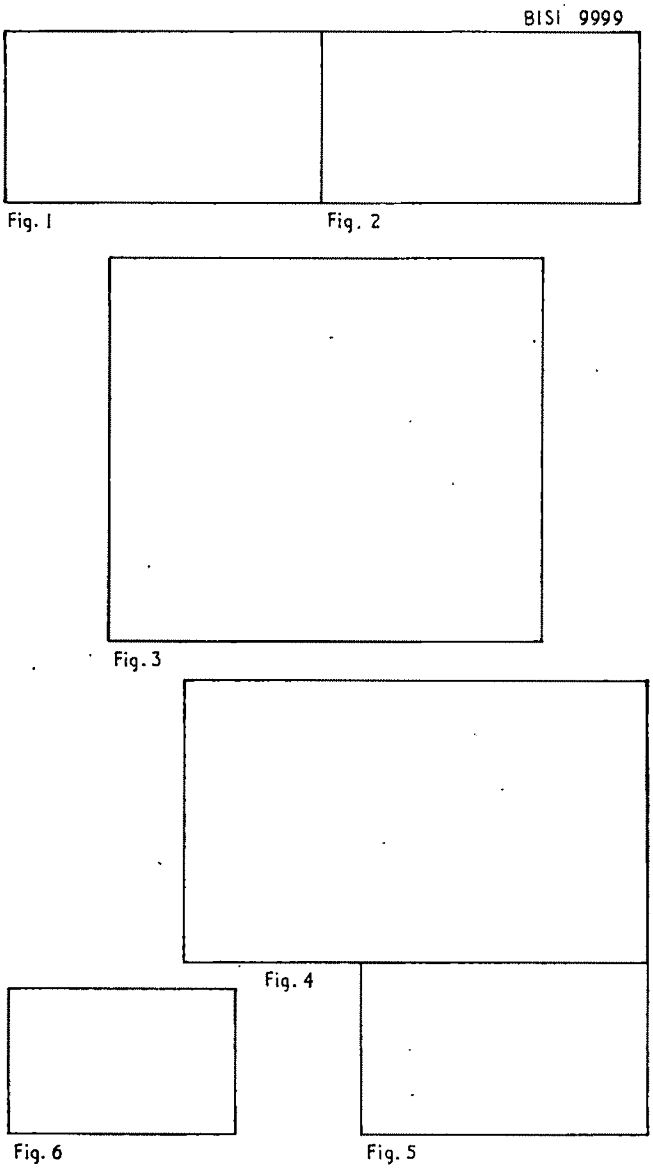

FIGURE 1. *Layout plan for illustrations*

CAPTIONS

The translated captions to the illustrations can be typed on the strips of paper masking the text and are then included in the photographs. This is a little more expensive as more photographic materials are needed and perhaps an extra litho plate, paper, etc. The increased cost is more noticeable if an outside duplicating agency is employed. The cheaper method is to plan the layout of the illustrations before typing the captions, and then to type the captions for each plate of illustrations on a wax stencil or paper litho master and run them on the facing page, that is the captions for plate 2 to go on the back of plate 1, and so on. A paper litho master is cheaper than a stencil, and more suitable for use with litho paper, but duplicating agencies charge less for stencils because they are run on a less expensive machine. Stencils are not, however, very suitable for litho paper, which is non-absorbent, and it is advisable to interleave scrap sheets of duplicating paper when the stencils are being run, to prevent the ink coming off on the the next page (set-off).

Some diagrams contain a number of words apart from the caption proper. The alternative methods of treating these are:

a. Put a vocabulary under the caption, in the form

Zugfestigkeit in kg/mm^2 = tensile strength, kg/mm^2
Glühdauer in h = annealing time, h

But this makes more work for the reader, especially if the list of words is long; and it will not work for Russian or Japanese, since the reader cannot be expected to decipher the original at all.

b. When masking the journal little pieces of paper with the English translations can be stuck on or around the diagram. A typewriter with a miniature type can be very useful. Red typing shows up very well for photographic purposes.

c. A good method for line diagrams, but not for half-tone photographs,* is to make photocopies of the original (enlarged if necessary), cut out the diagrams and mount them on a sheet of paper, and type the captions and other legends on or around them (Fig. 3). Again, include the reference number of the translation on each sheet. The page can be reproduced by whichever process is most convenient:

- photocopying (up to about 20 copies)
- photostencil (almost unlimited copies; but fine lines in the illustrations tend to be lost)
- electronic stencil (almost unlimited copies; better reproduction than by photostencil)
- litho plate made by xerography or by the Kodalith process (up to about 200–300 copies)
- photo-litho plate (aluminium plates give the best reproduction of all and almost unlimited copies)

Finally, the only way to deal with some illustrations, full of words in very small print, is to have them re-drawn.

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* Unless a couple of offprints of the original can be obtained for cutting up. Occasionally it is possible to borrow the author's original photographs, or even to get the editor of the journal to make a special run from his blocks.

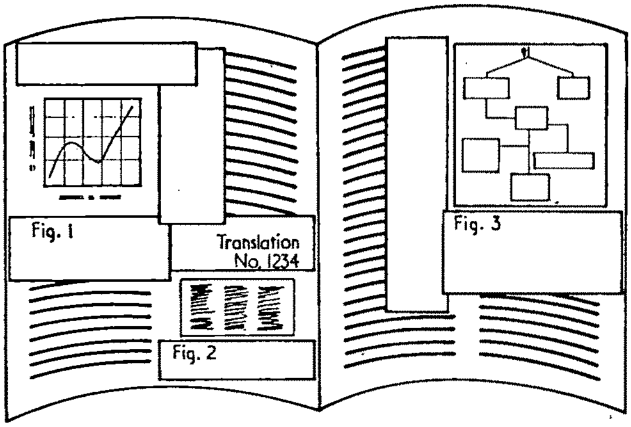

FIGURE 2.
Masked journal ready for copying

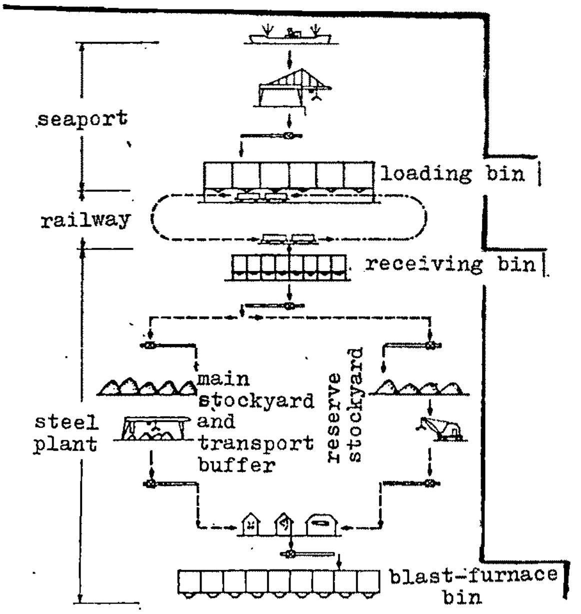

FIGURE 3.
Paste-up of line diagram for reproduction

GENERAL ARRANGEMENT

The method described here assumes that the illustrations will be grouped at the end of the translation; but once the principles are understood there is any number of possible combinations. For example, the method described in paragraph *c* above can also be used by those who like to have the diagrams in the text on the pages where they are referred to, and it is particularly suitable for papers which contain mathematical equations; but it means using one of the above processes for the whole text instead of only for the illustrations. The appearance is better, but these processes tend to be more expensive than wax stencils; and for short runs the ones which use lithography are slower, as a litho machine takes longer to clean after printing each page. Or the text can be put on the right-hand page and the illustrations on the left, facing the paragraph in the text where they are referred to. Or spaces can be left in the text and the pages run a second time to print the photographs from an aluminium plate. Or ordinary photographic prints can be stuck in by hand if not too many copies are required. And so on.

COST

The net cost cannot be given precisely because every copying agency has its own scale of charges, and in addition the cost of each job will depend on the size of the illustrations, on their arrangement on the printed page (which may permit two or more to be photographed on one negative), and on whether they are line drawings or half-tones. Usually the minimum charge is for fifty copies, but photocopies and dyelines are priced singly. Here are some examples, as charged by one agency. They are moderate, and a firm which charges more is not necessarily overcharging; but they serve to compare the methods.

Photo-offset-litho	£	*s.*	*d.*
Art work, masking journal, etc., say 1 hr @ 7*s* 6*d*		7	6
Negatives of 4 line drawings @ 2*d* per sq. in., min. 6*s*	1	4	0
Art work on negatives and making plate		9	0
Printing 50 copies (min.)		9	0
Stencil for captions on facing page and 50 copies (min.)		8	6
	£2	18	0

(Half-tone negatives are 3½*d* per sq. in., min. 10*s* 6*d*; total cost becomes £3 16*s*)

Xerography			
4 single prints @ 2*s* 6*d*		10	0
Art work, say		7	6
Making plate and 50 copies (min.)		18	0
	£1	15	6

Photocopy + photostencil			
4 photocopies @ 3*s*		12	0
Art work, say		7	6
Photostencil		13	6
Running 50 copies (min.)		8	6
	£2	1	6

Photocopy + photo-litho	£	*s.*	*d.*
4 photocopies @ 3*s*		12	0
Art work, say		7	6
Line negative, 84 sq. in.		14	0
Plate and 50 copies (min.)		18	0
	£2	11	6

Photocopy + photocopy			
4 photocopies @ 3*s*		12	0
Art work, say		7	6
50 photocopies @ 3*s* (copies charged singly)	7	10	0
	£8	9	6

Photocopy + dyeline			
4 transparent photocopies (autopositives) @ 3*s*		12	0
Art work, say		7	6
50 dyelines @ 6*d* (copies charged singly)	1	5	0
	£2	4	6

These prices will seem rather high to those who use their own equipment, but of course they include such overheads as depreciation, time spent cleaning machines, and so on, which in the duplicating department of a large organization are hidden. They are given here to provide a basis for comparison. The list does not begin to be exhaustive.

I should like to conclude by mentioning two opinions on matters of detail: one is that A4 size paper (8¼ × 11½ in. approx.) looks better than foolscap and would be more convenient for planning the layout of illustrations, because it is the size used by most journals; it is a pity that the makers of duplicating and lithographic equipment do not encourage it. The second is that the captions should be reproduced below, or opposite, the illustrations to which they refer; this is not difficult to manage, and any other arrangement is awkward for the reader.

COST RESEARCH ON A LIBRARY SERVICE*

L. TAYLOR

Librarian, Gear Divisions, David Brown Industries Limited

HISTORY

THE present Gear Divisions Library of David Brown Industries Ltd, has been in operation since the late 1920s. Although its history is chequered with periods of relative inactivity its growth has been, in general terms, continual. In its early days the technical interests it had to serve were more varied than at present and ranged mainly over gears, machine tools and foundry practice. In 1951 the company decided to 'divisionalize' its growing interests in that the activities of the parent works were restricted to the design and manufacture of gears and gear units. This reorganization also restricted the subject interests of the library, which tended more and more over the next five years to serve the Development Department, of which it formed one part, and even then to provide little more than book and periodicals services.

The management decided in late 1957 that the library should extend its services outside the Development Department and particularly to production units. To effect this extension an experienced librarian was appointed and subsequently the clerical staff was increased.

As a section of the Development Department the library had always operated within the department's budget, and consequently many of its running costs could not be ascertained readily. It was decided therefore that, commencing with the 1959–1960 financial year, the library, although still a section of the Development Department, should operate on its own budget.

In the absence of available data on previous running costs the budget for 1959–60 had to be somewhat tentative. Obviously, moreover, as a service department, it is maintained financially by the various production departments. The allocation of the 1959–60 costs to the production departments in proportions commensurate with the use made of the library service presented considerable difficulty, and again these figures were purely estimates. Literature searches produced little towards the solution of the problem, which after all was domestic.

To obtain data for more accurate budgeting and cost allocation for 1960–61, therefore, research was undertaken on costs of labour and materials used in the various activities of the library. The results obtained might serve as an aid to future planning and possible reorganization and might give some indication of the costs of providing information in answer to specific inquiries, of producing research and library reports and of the loan and periodicals services.

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* An abstract of this paper was given at Aslib Midlands and Northern Branches Conference, University College of North Staffordshire, 21st July 1961.

FUNCTIONS AND ORGANIZATION

The functions of the library resemble closely those of many libraries serving firms of comparable size (2,500 employees) and again those libraries integrated with research departments. In addition to the conventional services (loans, periodicals, inquiries, abstracts, translation and routine publications) the library acts as the general secretariat of the Development Department. As such it is responsible for

i. production and filing of all internal and external correspondence of that department;
ii. typing, collation, distribution and filing of all research reports and routine departmental returns;
iii. filing and loan of departmental drawings;
iv. clerical assistance to the Standards Engineer in correspondence and preparation and distribution of internal standards;
v. general messenger work and general clerical duties.

Books and periodicals are purchased by requisition through the Central Purchasing Department, and items required solely for specific departments are charged to those departments. Fixed charges are made on the library for such items as postal and telephone services and rates.

To provide these services the Librarian is assisted by five female clerk/typists, three being of GCE standard and all being within the age range of 16–21 years. The senior is a qualified shorthand typist, two others are semi-trained and the remaining two are of junior status, with less than one year's training and experience.

The library is divided into two sections, library unit and secretariat. Apart from the obvious, the allocation of duties is as follows:

Senior shorthand/typist: secretarial duties of External Research Engineer; inquiry recording; correspondence and filing; committee correspondence and filing.

Shorthand/typist: secretarial duties for Head of Development Department; filing of all correspondence excluding inquiries and committee work.

Copy typist: filing of library stock excluding reports and drawings; collection of national savings.

Library clerk: standards preparation and distribution; research order book and issue and recording of report serial numbers; photocopying and book requisition; filing of reports and drawings.

Junior assistant: assistance in distribution and preparation of standards; stock filing.

INVESTIGATION

All library staff were required to keep detailed daily time sheets, quoting times of commencement and finish of each operation, brief description, department for whom carried out, production (e.g. 13 letters, 1 research report, 4 memoranda) and materials used. To minimise the time required to complete these records simple code systems were used for production and materials.

Records were kept continuously over the period 24th August 1959 to 31st March 1960. Thus the research period included the fluctuations of the pre-Christmas and post-Christmas periods and constituted 63.5 per cent of the working year.

Each month's records were analysed immediately after completion, and in order not to distort the average working day these analyses were carried out outside the stipulated working hours.

All staff absences were regarded as fully paid time, and thus the total hours charged to each operation were calculated from the maximum hours possible per individual, based on a percentage of the hours recorded for each operation compared with the total hours recorded.

Two staff changes during the period entailed some minor redistribution of duties. The research was concerned primarily with costs, however, and the changes took place at the end of February; therefore the times of the original staff members and of these newly appointed were aggregated for each operation.

Production figures for the research period were extrapolated on an annual basis. In view of the steadily increasing activity of the library such an estimate was required to be conservative and yet adequate for a general survey.

RESULTS

The percentage distribution of labour hours is shown in Table 1. These hours have been converted to costs, using basic hourly rates; the actual labour costs of each operation are given in Table 2 and expressed as percentages of the total labour costs.

Table 3 shows output of the library for the year, so far as it is measurable.

The total cost of each operation, i.e. labour and materials, is given in Table 4, whilst in Table 5 are quoted the calculated costs of individual library products.

The various regular library records have been analysed to arrive at an index for each production department, as a measure of its use of the library services.

DISTRIBUTION OF LABOUR

Table 1 shows that 64.5 per cent of the staff time was devoted to purely library duties and 25.4 per cent to Development Department work, whilst the remainder of the time (10.1 per cent) was spent on minor duties of a more general nature. When hours are converted to cost, however, these percentages change to 69.4 per cent, 19.4 per cent, and 11.2 per cent respectively. In large part the two increases are due to the facts that only 1.5 per cent of the Librarian's time was spent on Development work, and of course, that his rate of pay is much higher than those of the library staff.

Overall these ratios are much as was expected, although the percentage for general work is too high. This may be due to some uncertainty on the part of the staff in recording time, and it is expected that greater accuracy and a clearer comprehension of the various aspects of the work will result in a lower figure for general work in the next survey.

In regard to hours, it is interesting to note that 32.6 per cent of staff time was spent in dealing with inquiries and in disseminating information, representing a cost of 28.1 per cent of the total expenditure.

From Table 1 it is evident that the allocation of duties listed earlier cannot be observed strictly in that all the staff are concerned to some extent in virtually all aspects of the library's work. In view of the relative youth and inexperience of the staff, therefore, some of the figures for individual staff may not represent the real part played in an operation with which they are unfamiliar. A more even balance may be struck in future surveys. On the other hand, in view of attendance on external training courses and staff absences some interchangeability is essential.

TABLE 1

PERCENTAGE DISTRIBUTION OF LABOUR HOURS

Operation	Librarian	Senior Shorthand Typist	Shorthand Typist	Copy Typist	Library Clerk	Junior Assistant	Total Staff
LIBRARY							
Publications	19.7	3.7	3.7	26.8	9.9	7.2	11.9
Periodicals service	—	—	1.2	2.5	14.7	33.0	9.3
Stock acquis. and index	35.7	1.3	5.1	2.5	6.9	1.7	8.8
External relations	15.0	9.1	14.4	8.8	1.4	1.1	8.4
Loans service	1.9	—	1.8	6.2	23.3	14.9	7.9
General corresp.	2.0	9.8	13.3	4.3	2.3	0.6	4.8
Training	1.9	0.5	0.4	0.2	11.4	8.8	3.5
Inquiries	8.8	2.8	5.6	0.1	2.9	—	3.5
Abstracts	1.6	0.9	1.1	4.3	0.1	—	1.8
Other duties	0.8	0.9	0.5	5.5	0.8	19.8	4.5
	87.4	29.0	47.1	61.2	73.7	87.1	64.5
SECRETARIAT							
Departmental corresp.	—	29.4	29.0	21.8	1.3	2.2	13.4
Departmental reports	1.5	13.4	15.5	13.6	3.6	1.3	8.2
Standards	—	8.2	1.1	0.3	14.3	0.3	3.8
	1.5	51.0	45.6	35.7	19.2	3.8	25.4
GENERAL ADMINISTRATION	11.1	20.0	7.3	3.1	7.1	9.1	10.1
TOTALS	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Despite this, however, the three typing staff spent, on the average, 44.1 per cent of their time on Development correspondence and reports.

From Table 1 it can be seen that the Librarian devoted 61.1 per cent of his time in obtaining and recording information and establishing and widening contacts with external information sources. This represents a fairly satisfactory division of labour, for after analysis and appraisal the actual dissemination of information becomes a more-or-less mechanical process.

TABLE 2

DISTRIBUTION OF LABOUR COSTS

Operation	*Labour costs* £	*Percentage*
LIBRARY		
Stock acq. and index	397	18.7
Publications	292	13.5
External relations	231	11.1
Inquiries	114	5.3
Loans service	109	5.2
General correspondence	86	4.4
Periodicals service	84	4.1
Abstracts	46	2.5
Training	43	2.0
Other duties	62	2.6
		69.4
SECRETARIAT		
Departmental correspondence	200	9.6
Departmental reports	139	6.7
Standards	66	3.2
		19.5
GENERAL ADMINISTRATION	232	11.1
TOTALS	2101	100.0

PRODUCTION STATISTICS

It is almost as difficult to present statistically the production of an information unit as it is to assess its value. A major inquiry may involve the typing of one letter, an hour's search and the supply of the answer in a single-page memorandum; on the other hand, as has happened, the Librarian and several staff may spend the entire week in searching and then a further three days in supplying the answer in report form. A research report may consist of one page or as many as fifty-one.

Nevertheless, Table 3 does afford some measure of the library's activities, and, in fact, in relation to experience, these figures are high compared with other industrial libraries of comparable size. The main features are that

i. 1,238 published items were acquired;
ii. 2,290 items were issued on loan;
iii. 166 periodicals are received and distributed currently;
iv. 367 inquiries were received;
v. 123 research, departmental and library reports were produced;
vi. 3,089 letters, memoranda and instructions were typed.

To the above must be added regular weekly and monthly library publications.

TABLE 3

STATISTICS OF LIBRARY ACTIVITIES 1959–60

Operation	*Annual*	*Weekly*
LIBRARY		
Stock acquisitions		
Selection and purchase	1238 (107 books; 846 reports and papers, 145 trade catalogues, 102 trade pamphlets 12 Brit. Pat. 26 BSS)	25 items
Indexing and classification	11,360 cards	230 cards
External borrowings	293 books	5 books
Correspondence	109 letters, 55 memos.	2 letters, 1 memo
Periodicals service		
Titles received	166	
Copies handled	3,800	772
Loans service		
Loans	2,290	44
Inquiries		
Quick reference and minor	202	
Major	165	
Translations	No separate data available	
Correspondence	77 letters, 62 memos.	2 letters, 1 memo
Library publications		
Tech. Press Review	50, covering 3,624 items, 36 copies	1 covering 73 items
Accessions list	9, covering 480 items, 32 copies.	
Library reports	16, averaging 5 copies and 6 abridgements.	
External relations		
Correspondence	347 letters, 102 memos.	7 letters, 2 memos.
Committee minutes, agenda	4 sets.	

Other library work		
Correspondence	310 letters, 115 memos.	6 letters, 2 memos.
Abstract service		
Abstracts	640	13
SECRETARIAT		
Departmental correspondence		
Head of Development	138 letters, 578 memos.	3 letters, 12 memos.
External Research Engineer	197 letters, 161 memos.	4 letters, 4 memos.
Department	260 letters, 206 instructions, 346 memos.	5 letters, 4 instructions 7 memos.
Standards		
Correspondence	3 letters, 23 memos.	
Departmental reports		
Research reports	90, averaging 3 copies and 9 abridgements	2 reports (with abridgements)
Quarterly reports	4	
Progress reports	13	
General administration		
Telephone calls		
External	572 incoming	11 incoming
	576 outgoing	11 outgoing
Internal	884 incoming	18 incoming
	570 outgoing	11 outgoing

TOTAL COSTS

The total costs for the library, given in Table 4, show that library work accounts for 61.5 per cent and Development work for 18.1 per cent, the remainder being taken up by general administration, maintenance and fixed charges.

The heaviest charges are for stock acquisition (15.9 per cent) and library publications (11.2 per cent), representing largely the cost of obtaining and recording information and the cost of disseminating it.

On the other hand, the cost of external relations (8.4 per cent) is inordinately high and certainly higher than the actual cost since January 1960. This is due mainly to the time devoted by the Librarian to the establishment of the Huddersfield and District Information Scheme. This is now operating very successfully with a minimum of administration; and in fact the library staff as a whole are now spending less than 1 per cent of their time on the scheme.

COSTS OF INDIVIDUAL PRODUCTS

In view of the general nature of the records kept, the figures in Table 5 cannot be regarded as accurate, but can be taken as an indication within ± 5 per cent. From experience gained in preparing this survey, it should be possible to introduce certain additional features into subsequent surveys and thereby secure more exact data.

TABLE 4

TOTAL LIBRARY COSTS

Operation	*Labour* £	*Materials* £	*Total* £	*Percentage*
LIBRARY				
Stock acquisition	397	71	468	15.9
Publications	292	40	332	11.2
External relations	231	17	248	8.4
Periodicals service	84	157	241	8.1
General correspondence (2/5)	86	40	146	4.9
Loans service	109	12	121	4.1
Inquiries	114	—	114	3.8
Abstracts	46	—	46	1.6
Training	43	—	43	1.4
Other duties	62	—	62	2.1
	1,464		1,821	61.5
SECRETARIAT				
Departmental correspondence (3/5)	200	127	327	11.1
Departmental reports	139	5	144	4.8
Standards	66	—	66	2.2
	405		537	18.1
GENERAL ADMINISTRATION				
General	232	—	232	7.8
Postage and telephone	—	114	114	3.9
National insurance	—	90	90	3.0
Superannuation	—	58	58	2.0
	232		494	16.7
MAINTENANCE AND FIXED CHARGES				
Electricity, gas and water	—	23	23	0.8
Maintenance of equipment	—	21	21	0.7
Building and lighting repairs	—	14	14	0.4
Fixed charges	—	39	39	1.3
Miscellaneous	—	8	8	0.3
	—		105	3.5
TOTALS	2,101	836	2,937	100.0

Nevertheless, with some exceptions, the individual costs are satisfactory, especially those for stock acquisition, technical press review, periodicals service and loans.

Accessions list

The cost per copy of an accessions list (5*s* 10*d*), however, is most unsatisfactory in that it should be lower than that of a technical press review, more especially as the method of collecting the material for inclusion in an accessions list is less protracted. It is not evident how this high cost has arisen, and it is assumed therefore that some error in recording must have occurred.

Correspondence

The costs of a library letter (4*s* 6*d*) and of a Development letter (5*s*) are somewhat higher than expected, but this may be attributed partly to interruptions during dictation and partly to inexperience in shorthand. Yet, if the results of a recent 'Business' survey are to be accepted, a typist spends no more than 50 per cent of her working day in actual typing. Again, these costs are averages for the year, and with the progressive improvement in shorthand-typing ability obtained through regular training and increasing familiarity with the terminology, these costs should decrease steadily.

Reports

Figures quoted for library and development research reports, being averages, must be regarded as largely hypothetical in this particular survey, due particularly to the wide variation in content and format. At the same time the difference between the costs of library and research reports is real enough, in that the former includes costs of obtaining and preparation of material, whereas the second comprises only costs of typing and collation. Progress reports and quarterly reports are each virtually standard in content and size, and therefore the costs for these (£1 2*s* 9*d* and £1 2*s* 6*d* respectively) may be regarded as reasonably correct.

Inquiries

Inquiries have been divided into quick-reference and major, a quick-reference inquiry being defined as one which can be answered from the library's stock, without consulting outside sources, and within a searching time of, say, a quarter of an hour. The cost of a quick-reference inquiry (2*s* 10*d*) may be regarded as reasonably accurate when one considers that it is usual practice to confirm answers in writing.

As with library and research reports, however, major inquiries, involving lengthy searches, contact with external sources and possibly the preparation of bibliographies and reports, cannot be assessed collectively, and the recording of data on individual inquiries is essential for accurate costing.

In fact the assessment of the total costs of the inquiry service is a problem of some complexity, in that the loans service, periodicals service, stock acquisition, in fact virtually all aspects of the library work, are involved. Even so, by using an amended procedure in the next survey some reasonably accurate data for individual inquiries should ensue.

TABLE 5

COST OF INDIVIDUAL LIBRARY PRODUCTS

Item	*Cost*
Stock acquisition	6*s* 5*d* + cost of publication
Publications	
Technical press review	2*s* 8*d* each
Accession list	5*s* 10*d* each
Library reports	£4 per report
Periodicals service	10*s* 1*d* per periodical distributed
General correspondence	4*s* 6*d* per letter
Loans service	1*s* per item issued
Inquiries	
Quick-reference	2*s* 10*d* per inquiry
Major	10*s* 4*d* per inquiry
Abstracts	1*s* 5*d* per abstract
SECRETARIAT	
Departmental correspondence	5*s* per letter
Departmental reports	
Research reports	£1 18*s* 11*d* per report
Progress reports	£1 2*s* 9*d* per report
Quarterly reports	£1 2*s* 6*d* per report

Translations

The cost of individual translations has been omitted from Table 5, as these may involve the translation of only one word or perhaps several pages of text. Familiarity with the language, obviously, is another variable to be considered.

It should be recorded, moreover, that much of the translation work deposited with the library is completed in collaboration with two members of Development Department staff, who themselves undertake considerable translation work.

The requirement for translations is increasing steadily, and to the total annual cost of these in the library should be added at least £84 for Development staff time, in order to obtain an assessment of the total cost involved.

Abstracts

The cost quoted for an abstract (1*s* 5*d*) is somewhat misleading in that the total costs cover preparation and typing of original abstracts and also the reproduction of published abstracts. A more exact figure for the original abstract would be perhaps 3*s* 6*d* for preparation plus 1*s* for typing, and for the copying of a published abstract 9*d* for typing.

INQUIRIES

Analysis of inquiries received during the year from the various users of the library show that 77.4 per cent originated from departments at Park Works and

15.8 per cent from other Divisions, the remainder (6.8 per cent) emanating from other organizations, e.g. customers and members of HADIS.

The fact that roughly half (50.9 per cent) of the inquiries originated from production departments is an encouraging indication of their use of the service.

LOANS

As was expected, loans to the Development Department comprised 44.7 per cent of the total, but in recent months this percentage has not been maintained. In view of the steady monthly increase recorded during 1960 for total loans it is anticipated that the percentage figure for the Development Department will be appreciably lower in the next survey. The percentage for production departments (18.7 per cent) is somewhat disappointing, but is explained to some extent by their requirement for specific information rather than published texts.

PRODUCTION DEPARTMENTS

As a guide to the allocation of costs for the 1960–1 financial years an index was calculated for the use by production departments of the library services. This index was based on (i) inquiries, (ii) loans, (iii) number of periodicals distributed to each production department, each addressee being counted as one issue, and (iv) numbers of reports and abridgements issued to staffs of production departments.

CONCLUSIONS

In general terms the survey has afforded a useful measure of the library's activities and apart from one or two facets of purely domestic interest, several features of general interest have come to light. The distribution of library costs to library services and Development secretariat is in the approximate ratio of 3 : 1; on the other hand, except for supervisory duties, the Librarian's time is devoted almost exclusively to library services. The costs of obtaining and recording information compared with disseminating information are shown to be in the approximate ratio of 2 : 1. Most important of all domestically, perhaps, a method has now been established for predetermining the allocation of the costs of the library service.

In view of the results the survey is to be repeated annually, to provide data on distribution of activities and statistics of loans, periodicals service, inquiries and publications, but not on correspondence. Additionally, more detailed data will be collected on individual reports and inquiries.

ACKNOWLEDGMENT

The author wishes to express his thanks to the management of Messrs. David Brown Industries Ltd for permission to publish details of this research.

Letters to the Editor

Dear Madam,

Since attending the special meeting held on 9th May in the lecture hall of the Royal Aeronautical Society on the proposed National Reference Library of Science and Invention, I have given considerable thought to the proposals presented and to the main problem of the shuttle service between the two sites.

Basing my opinions on my own requirements from such a library, and the more general requirements of the graduate research staff with whom I work, I feel many of the difficulties have arisen unnecessarily from the proposals for the stock holdings of the new libraries.

To have one library holding 'current' literature and another storing 'back' issues, only provides two libraries each holding 'a little bit of everything, but not enough of anything'. Such a system can only magnify the task of providing an adequate transport service between these libraries—a task which will undoubtedly increase with the accumulation of ever-increasing stock.

May I suggest, therefore, that it would be worth while to investigate the possibility of broadly 'specializing' the two available sites. The whole field of science could be proportionalized between the two libraries in relation to the available space at each location. One site would then hold all the relevant literature for a given subject.

This arrangement would reduce the shuttle transport, and hence the time wasted, to a minimum. Furthermore, potential library users would be able to predetermine which site to visit. I fully appreciate that in overcoming many of the original problems, a number of new ones will arise, but comparison between this concept and the original could well prove worth while.

The problem of expansion on the South Bank site is another which interests me a good deal. Since 'outwards and upwards' expansion is restricted by the LCC, I should be very interested to know whether or not the possibility of digging beneath the building has been investigated. Extra-deep storage vaults could provide many thousands of cubic feet of space as a useful addition.

In view of the necessity of this very fine service, and the need to provide a National Reference Library to rival the best in the world, I feel that more open comment and discussion is required before the final decisions are made. Such comments do not always arise during discussions such as the meeting in question, where representation and time is limited.

Accordingly, may I suggest that this letter be published in the *Aslib Proceedings* with an open invitation to all readers for comments, criticism and suggestions of the *real* requirements of our National Reference Library for Science and Invention.

Yours faithfully,
A. R. DODD,

51 Kingsley Road,
Silverstone,
Northants.

26th July 1961.

Dear Madam,

May I express my gratitude to Mr Dodd for his careful and constructive letter, which you were kind enough to show me, on the subject of the new National Scientific Reference Library. It is exactly the kind of letter which I find most helpful in the complicated planning problems which have to be dealt with at the present time.

There are one or two points which ought to be made in answer to the matters which Mr Dodd raises in his letter, but before giving them may I assure Mr Dodd and all your readers that we are studying very seriously the way in which the Library is likely to be used, the types of readers we may expect and the books and periodicals they are likely to require. For this purpose we are planning a detailed study of the present Patent Office Library and its use.

Now to deal with one or two of the points which Mr Dodd makes in his letter. The main tenor of his letter is the undesirability of splitting the collections between Bloomsbury and the South Bank. Nobody would disagree with him on this point and it would ultimately be possible, should it be considered desirable, to house everything at Bloomsbury when the new Library is built. It must not be forgotten, however, in this context that one of the advantages of the South Bank site is that the building should be available much earlier than the new Library building in Bloomsbury. It is expected to be ready for occupation in 1965 or 1966, whereas the building in Bloomsbury is likely to be ten or even fifteen years longer than that.

My off-the-cuff comment on Mr Dodd's suggestion that one might divide the specialist collections between the two sites on a subject basis is that this would be both very difficult to do, and, in view of the tendency of the sciences to merge into each other and the very considerable area of common interest between all the sciences, not really desirable. It seems to me that as the division of material has to be made, it is far easier to do it on a time basis in the way which has been proposed.

In any case it should not be forgotten that the Library which is to be constructed on the South Bank is a very substantial one and, I am certain, likely to be able to meet a large proportion of the demands which will be made on it. A shuttle service between Bloomsbury and the South Bank will undoubtedly be necessary but I do not foresee the very great difficulties that have been suggested; in any case those who require large ranges of historical material are likely to know their needs in advance and to be able to make arrangements to have the books ready when they are wanted. The suggestion of building below ground is much in our minds, but has to be viewed against the difficulty of ensuring suitable housing conditions on a site so near the river.

May I end by assuring Mr Dodd that in his own words our aim is to provide a National Scientific Reference Library which will rival the best in the world, and that any comments which can contribute to this end will be very gladly received and given full consideration.

Yours faithfully,
SIR FRANK FRANCIS,
Director and Principal Librarian,
The British Museum,
London, W.C.1.

11th August 1961.

SELECTIONS FROM THE RECENT LITERATURE

ALL ITEMS listed may be borrowed from the Aslib Library, except those marked *, which may be consulted in the Library.

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AUSSCHUSS FÜR WIRTSCHAFTLICHE VERWALTUNG
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RUBBER *Chemistry and Technology*, 1960, Vol. 33, no. 1. Shirley Institute, Manchester 20.

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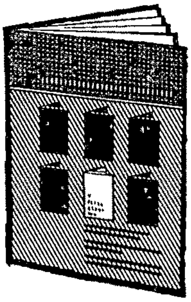

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ASLIB PROCEEDINGS

incorporating Aslib Information

Volume 13 **October 1961** **Number 10**

ASLIB CALENDAR

October

TUE.24. Winter meeting 5.30 at Aslib. Speaker: W. Ashworth, British Nylon Spinners Ltd.

Midlands Branch Meeting at Birmingham University.

WED.25. Fuel and Power Group visit to DSIR Research Station, Watford.

MON.30. Senior introductory course on information work commences.

November

TUE.7 – WED.8. Course on work with patents and elementary patent practice.

WED.15. Aslib and Institute of Petroleum joint meeting.

Northern Branch visit to NLL.

FRI.17. Technical Translation Group meeting at Aslib.

WED.22. Aeronautical Group winter meeting in London.

December

WED.6. Fuel and Power Group meeting at Aslib.

WED.13. Winter meeting.

Scottish Branch

Dr M. F. C. Paige, B.SC., A.R.I.C., M.I.INF.SC., Librarian, ICI Nobel Division, has been elected Branch Chairman in succession to Mr Alec Liddle. Dr Paige was formerly Vice-Chairman of the Branch. Mr C. E. Rogers, Ministry of Works, Edinburgh, has been elected Vice-Chairman.

Industry was well represented among the applicants for attendance at the Branch's first two-day course in information work, held at the Royal College of Science and Technology, Glasgow, last month.

Aeronautical Group

The Group's Winter Meeting will be held in London on Wednesday 22nd November. At 10.30 a.m. members will be able to visit the Technical Information and Libraries Division of the Ministry of Aviation, at First Avenue House, High Holborn, London WC1. The afternoon session will be held from 2.30 in the lecture hall, Holborn Central Library, when Mr Julian Blackwell, of Blackwell's, Oxford, will describe some of the difficulties of a bookseller. Those wishing to attend either of these sessions should notify the Group Secretary, Miss M. Dyke, Librarian, Royal Aircraft Establishment, Bedford, as soon as possible.

Institute of Petroleum and Aslib Joint Meeting

A joint meeting of Aslib and the Institute of Petroleum will be held at 5.30 p.m. on Wednesday 15th November at the Institute, 61 New Cavendish Street, London W1. Tea will be served at 5 p.m. The speaker will be Mr R. Snel of Shell International Petroleum Co., who will describe and demonstrate the Company's systems for gathering, distributing, and retrieving information. The retrieval system is based on the use of specially designed aspect cards and equipment which enable information to be retrieved in a large number of countries. Preprints of the paper will be available in advance from the Meetings Organizer, Aslib.

Aslib Directory Amendments

Amendment List 1 to the *Aslib directory* is now available free of charge, from Aslib, to all holders of the directory. The amendment list covers alterations of titles, addresses, and subject scope, etc., but does not include corrections to opening hours, stock figures, or such details as editions of classifications used.

Aslib Year Book 1961–62

The new edition of the year book is now ready and available to members of Aslib at 12*s* 6*d* and to non-members at 18*s* per copy, from Aslib. The 1961–62 volume follows a similar format to that of its predecessor, and contains a report of the past year's work with balance sheet, a summary of Aslib's services and activities; members of Council and officers elected for the current year; an up-to-date list of Aslib members; revised sections on Aslib publications, special library literature, national and international special library organizations, library suppliers in Great Britain; and the Memorandum and Articles of Association of Aslib.

FID Conference

More than 500 delegates from some thirty different countries attended the 27th Conference of the International Federation for Documentation, held at Caxton Hall, Westminster, from 6th to 16th September. The first five days of the conference were devoted mainly to the work of the FID Committees—one of these only, that on Automatic Documentation organized by the committee on Mechanical Storage and Retrieval and held on Saturday 9th September, was opened to all delegates and attracted such wide interest that the doors had to be closed for a short time when the hall was filled to capacity.

The conference was officially opened by the Baroness Wootton of Abinger on Tuesday 12th September, and speakers at the ensuing sessions included representatives of Canada, Czechoslovakia, Denmark, France, Germany, Japan, the Netherlands, USA, and United Kingdom.

It is hoped to publish a general report of the conference in a later issue of *Aslib Proceedings*. Copies of the papers will be available direct from FID, 7 Hofweg, The Hague, Holland.

Building Information

Technical information is the underlying theme of the Building Exhibition to be held this year from 15th to 29th November at Olympia, London. Exhibits will include a model library and special display designed to illustrate the requirements of trade technical literature.

A conference on 'Technical information: its dissemination and design' will be held at Olympia on Monday 20th November, in connection with the exhibition. Discussion will be led by a builder, a manufacturer, a sub-contractor, a merchant, and an advertiser. Application for attendance at the conference should be made to the Conference Secretary, The Building Exhibition, 11 Manchester Square, London W1, from whom further information can be obtained.

NLL

The National Lending Library for Science and Technology has issued its first news-letter from Boston Spa. In this is clearly stated the material and facilities available at the NLL, as follows:

Recent foreign-language serial literature.
Translations of Russian literature.
Russian books.
'PB' reports issued by the Office of Technical Services of the US Department of Commerce.
Published reports on German industry issued by BIOS, CIOS, and FIAT.
Certain English-language frequently used periodicals which were on a list issued from Stanmore.

To borrow literature or obtain photocopies from NLL, the Science Museum Library forms should be used and sent direct to the National Lending Library for Science and Technology, Boston Spa, Yorkshire.

Loan requests for English-language serials (excluding those referred to above) and for books in languages other than Russian should be sent to the Science Museum Library, as before.

NLL would like to continue to receive donations of suitable literature which libraries no longer wish to store. Offers, described in general terms, can be addressed either to Boston Spa or to the National Lending Library for Science and Technology, 1 Princes Gate, Knightsbridge, London SW7.

Iron and Steel Translations

The British Iron and Steel Industry Translation Service (BISITS) yearly translates about 350 articles from foreign technical journals on iron and steel manufacture and related subjects. The cost of these translations—averaging £4 - £5 each, and often as much as £10—puts them out of reach of many librarians. In order to make this material more widely available to students, research workers, and others, BISITS now offers the complete sequence of translations, at 5*s* each translation, to public libraries and technical colleges. Some of the early translations are out of print, but from 1959 onwards the series is virtually complete. Printed lists of all titles are available free of charge from BISITS, The Iron and Steel Institute, 4 Grosvenor Gardens, London SW1.

Society of Indexers Meeting

'The Index in microfilm: current projects and future potentialities' will be the subject of a talk to be given by Mr J. W. G. Bruce, of Micro Methods Ltd, at an open meeting of the Society of Indexers to be held at 5.30 p.m. on Monday 23rd October at the Library Association, Chaucer House, Malet Place, London WC1. The talk will be illustrated with lantern slides and followed by discussion.

New Library for School of Oriental and African Studies

The School of Oriental and African Studies, University of London, has recently issued a library building appeal. The new library will be housed in a building to be erected on a site provided by the University for the expansion of the School. Assistance from the University Grants Committee of the Treasury will ultimately be forthcoming for completion of the programme, but other means must be found to assist in the construction of the first self-contained stage of the library building. The library building appeal has been supported by a gift of £90,000 from the Rockefeller Foundation on condition that the School can raise the remainder of the £350,000 estimated cost. Donations should be sent to the Secretary, The School of Oriental and African Studies, University of London, London WC1, from whom further particulars may be obtained.

Library Circulation Control

The American Library Association has announced publication of the results of a nation-wide study of library control systems in the USA. The object of the survey was to identify the most efficient library circulation control systems and to develop new adaptations designed to assist librarians. It was carried out by George Fry and Associates, management consultants, on behalf of the Council on Library Resources, Inc., in co-operation with the Library Technology Project of the American Library Association. The findings, conclusions, and general recommendations of the survey are published in a report entitled *Study of circulation control systems,* price $2.50 (18*s* approximately). Three further publications dealing with circulation control systems for public librarians and for college and university librarians respectively are published as extracts from *Study of circulation control systems* under the titles *Circulation system selection manual—public libraries, Circulation system selection manual—college and university libraries,* and *circulation control for special libraries,* at 75*c* (4*s* approx.) each. All three publications are available from the Library Technology Project, American Library Association, 50 East Huron Street, Chicago 11, Illinois, USA.

Literature Searching Service

The Office of Technical Services, in co-operation with the Science and Technology Division of the Library of Congress, Washington, has established a new literature searching service for science and industry. The service provides for searches to be made of either or both of the Office of Technical Services collection and the Library of Congress collection to the extent specified by the inquirer. Two types of search are offered:

1. *Current Awareness Bibliography Service,* the purpose of which is to supply information on new literature in a given subject field at regular intervals (one month, three months, etc.) as prescribed by the inquirer.
2. *Retrospective Bibliography Service,* by which the inquirer can be supplied with a bibliography of material available at the time of inquiry, within the subject field, literature dates, and other limitations specified by him.

The fee for these searches is $8 (57*s* approx.) per hour. Additional information and search request forms may be obtained from OTS, US Department of Commerce, Washington 25, DC, USA.

Machine Translation of Chinese

A comparative syntactic study of the Chinese and English languages, for the purpose of facilitating machine translation and information retrieval, is to be undertaken by the Ohio State University Research Foundation, with the aid of a grant from the National Research Foundation, Washington.

Bibliography of Chinese Mathematics

The National Science Foundation, Washington, announces that a bibliography of mathematical articles published in China since 1949 will shortly be issued by the American Mathematical Society under the title *Bibliography of mathematics published in Communist China during period 1949–1960.* Copies will be available from AMS, 190 Hope Street, Providence, RI, USA, price $1 (7*s* 2*d* approx.).

Antarctic Information

A survey of Antarctic information sources is to be carried out by Science Communication Inc., Philadelphia, with the support of the National Science Foundation, Washington. The object of the survey is to locate documents, specimens, and data on the Antarctic, to investigate information requirements of and analyze information available to the United States Antarctic Research Program.

ASTIA'S RETRIEVAL SYSTEM:
an interim appraisal

W. A. BARDEN
Armed Services Technical Information Agency

Aslib Aeronautical Group Conference, Cranfield, 15th July 1961

INTRODUCTION

OUR Automatic Data Processing System (ADPS) first became operational in February 1960. Since then we have been showered with requests for information on various aspects of our application. It is my purpose here to present the information retrieval part of the story.

Early in 1952, ASTIA management prepared a comprehensive 'plan of operations'. Even then it was realized that eventual automation of the operations was essential if requirements for manning were to be held within reasonable bounds. At that time we had little doubt about the feasibility of automating the request processing and associated functions. But there were a number of corollary problems. For example, there was a belief that the cataloging system then in use might not be appropriate for automation. Because of this belief a contract was initiated to evaluate existing systems and select one most suitable to ASTIA's requirements. This evaluation led to the conclusion that no existing system was really suitable. Consequently, further work was undertaken which resulted in the Uniterm System of Co-ordinate Indexing. This system was considered to offer great promise in terms of its susceptibility of automation although, initially, it was believed that the system could be implemented without the application of machines. Even so, it was quickly recognized that indexing and retrieval of information for a collection the size of ASTIA's required some form of mechanization, if not complete automation. In the meantime, Uniterms were being assigned to reports which were being processed into the collection. This was done in order to minimize the task of conversion when a machine system would ultimately be available.

In the course of assigning Uniterms, single words or combinations of words were selected from the document which was being analyzed. No attempt was made to compile a list of terms that had been used. More important, no attempt was made to systematize the way in which words were used. As time went on, the staff became convinced of the need for an authoritative list of terms as well as rigorous ground rules for their use and had decided to take the necessary corrective action before any attempt was made to machine-process any segment of the information retrieval function.

In March 1958, the International Business Machines Corporation (IBM) offered to survey ASTIA with the objective of determining whether an Automatic Data Processing System could be profitably utilized. Working closely with ASTIA personnel, the IBM representatives made their survey and in September 1958 presented their report to the Commander of ASTIA. The survey brought out the fact that, of all the functions which were considered susceptible of automation, those which accounted for the greatest share of manpower resources were the so-called 'business-type' functions. This fact is extremely important. Its consideration was the predominant factor in the selection of equipment. It meant, in over-all consideration, the selection of equipment should be based on requirements residing in the business-type functions, *but* with due allowance for the requirements residing in the information retrieval function.

The various aspects of ASTIA's planning for automation are covered in detail in ASTIA reports (AD 227 000, AD 247 000 and AD 252 000). Suffice it to say here that we originally planned to use an IBM 9900 (Special Index Analyzer) for experimentation in information retrieval. This is a device which uses punch card decks for searching and punch paper tape for storing hits. It had the advantage of being relatively inexpensive, and it was considered worth while for testing our philosophy of information retrieval. The original plan also called for *experimentation* in information retrieval using the computer when we arrived at the magnetic tape stage. It was estimated that 1st November 1960 was the earliest date we could be ready for the magnetic tape system.

Before our original proposal could be approved by Headquarters US Air Force and the Office of the Secretary of Defense, we changed our equipment selection. Our continued analysis of the system in terms of the equipment led to a decision to perform searches on the computer. It turned out that we were able to test our information retrieval philosophy in the punch card configuration of the Univac Solid State (USS) 90 Computer during the period April through June 1960.

On the basis of this testing programmes were written for information retrieval in the tape configuration during the period July through December 1960. During this same period bibliographies were run operationally using punch card input to the USS 90. The tape system was installed in September 1960, and *in January* 1961 *we were running* bibliography searches operationally using magnetic tape. This was just two months after the earliest date we could have initiated experimentation had we not changed our original plan. Needless to say we are still experimenting and will continue to do so for some time to come.

INPUT (INDEXING)

Although we were confident that mechanization of information retrieval was feasible, there was very little guidance to be obtained either from the literature or from people active in the field. We decided that the first step was to develop a system of indexing terms suitable for automation. A group was formed within the Document Processing Division to develop the indexing terms. Many ideas were discussed, analyzed and discarded. One fact stood out—we had at our disposal two systems of subject matter approach: one, the traditional subject headings; the other the Uniterms. By 1959, the subject headings numbered in excess of 70,000 and had served in the manual system with proved success. Uniterms had been assigned to each report since March 1953. The subject headings and Uniterms were listed on the catalog cards.

As we faced the realities of automation, it became obvious that neither the subject headings nor the Uniterms met the requirements. Both had much to offer, but there was much to be desired in terms of clarification of semantics and the elimination of synonymous and obsolete terms. What was really needed was a dictionary of machinable terms suitable for assignment of retrieval terms in the collection and as a tool for the use of ASTIA customers in requesting bibliographies. We decided to call the analytical terms 'descriptors' and to designate the compilation a 'thesaurus'.

Our first actual step in development of the thesaurus was an overhauling of the *Subject Heading List.* Subdivisions were divorced from principal headings; the subdivisions were refined; and modifiers such as L-band and X-band were separated from main headings. Thus a list of 70,000 headings was reduced to about 9,000.

We had established a body of descriptors 'authoritative' in character because they came initially from the reports in the ASTIA collection. To define these descriptors and to give depth of retrieval, scope notes were developed showing what the descriptors included, what they were related to (cross references) or what they were limited to. This task segregated synonyms, subordinated other terms and brought about a reduction to about 7,000 descriptors. Open-ended terms are also used by ASTIA but are not listed in the thesaurus because they are not of an analytical nature. They include such things as nomenclature, project names and designators of various kinds. Some examples are Project Mercury, Atlas, X-15, Aerobee-Hi, Saber Jet and so on.

In addition to the alphabetic listing of all descriptors, we decided to arrange them into related groups bringing together terms such as hydrazine, borohydrides and liquid oxidizers. Furthermore, we adopted the policy that a descriptor should appear only in one group, and in each case this would be the group in which the primary scientific or technical relationship is established in terms of our collection. Re-analysis led to formulation of a name for each group, for example: Mechanics, Space Propulsion, Pest Control and Inhibiting Agents. The groups were arranged alphabetically by name and assigned sequential numbers. A total of 292 groups was developed, of which four are of a general nature.

Since we had carefully defined the descriptors and limited their meaning, we felt it was unnecessary to resort to the use of role indicators.

Establishing a point of entry into 7,000 alphabetically arranged descriptors was the next problem. We were convinced of the need for systematizing the use of the thesaurus in the indexing process. We accomplished this by devising a check list which contains the following guidelines:

1. *Subject.* (What was studied, investigated, tested, compiled, researched?)
2. *How was the subject treated?* (analysis, tests, design, production, computations, theory, specifications, operations, processes).
3. *What are the physical factors?* (mechanical properties, physical properties, chemical effects, biological factors).
4. *What equipment or method was used to support the research or investigation?* (spectrum analyzers, oscilloscopes, Charpy v-notch test equipment).
5. *Where or under what environment was the research accomplished?* (upper atmosphere, arctic, sub-surface, location if geographic or foreign).

6. *Additional qualifying information* (*open-ended terms*) (project names, military symbols, trade names, Mark/Mod numbers, AN/numbers, etc.).

Our analysts are expected to use the thesaurus, particularly the pertinent groups, when assigning descriptors to a report. This is done in order to assure maximum adherence to the philosophy of the use of descriptors that was developed when the thesaurus was created. In our opinion it is the best way to assure consistency in the assignment of descriptors. We realize, of course, that human beings do not always work according to the book.

When assigning descriptors to a report, the analyst selects those which best describe the content of the report. Of these, the ones which are most representative of the report are designated as 'indexing terms'. These are the terms under which the report will be listed in the cumulative index to the *Technical Abstract Bulletin* (*TAB*). Since indexing terms are designated on the basis of report content, a given descriptor will be an indexing term for one report and will not be selected for indexing of another report for which it has less significance.

OUTPUT (RETRIEVAL)

In providing reference service and compiling report bibliographies, the reference analyst faces two classical problems: 1, what information is required, and 2, how has it been cataloged? Both are subjective problems in the communication of ideas and information.

The reference analyst's problem evolves into one of interpreting a question, understanding its technical aspects, defining its limits and often assessing its unwritten implications. To an extent, the requester can minimize this problem by stating precisely what information is needed, and by providing descriptive data sufficient to permit accurate analysis and thorough searching. In this sense, the effectiveness of a bibliography is predetermined by the way the inquiry itself is formulated.

A corollary problem is the logical selection of retrieval terms and the determination of the manner in which these terms are to be co-ordinated in order to identify the pertinent documents. Just as the document analyst indexes each report by a discrete set of descriptors and open-ended terms which describe its contents, the reference analyst must parallel this process by selecting the terms which will retrieve the reports that pertain to the subject matter as stated in the reference question.

In order to minimize the subjective aspects in the preparation of a bibliography, the requester is asked to:

1. State the specific information required.
2. Furnish sufficient technical or descriptive data to provide a basis for correct interpretation and analysis.
3. Describe, whenever possible, the general problem area or application for which specific information is requested.
4. Indicate the type of information that need not be included in the bibliography or any other limiting factor.

On the reverse side of the bibliography request form we have reproduced a check list which corresponds to that used by the document analysts. Spacing of the check list permits the requester to indicate descriptors that should be considered in the search. The check list follows:

1. What is your subject? (The specific subject(s) you want covered.)
2. In what treatment of the subject are you interested? (Automation, costs, design, mathematical analysis, training, reliability, production, specifications, therapy, theory, etc.)
3. What factors are applicable? (Aerodynamics, biological effects, chemical effects, mechanical properties, physical properties, stability, etc.)
4. Should special methods or equipment be considered in the search? (Magnetometers, oscilloscopes, spectrum analyzers, micro-photography, test methods, etc.)
5. Where or under what environment is the search to be related? (Arctic regions, geographic location, gravity-free state, ocean bottom, upper atmosphere, etc.)
6. Are there any additional terms (not necessarily descriptors) which you would suggest (such as project names, military symbols, trade names, Mark/Mod numbers, AN numbers, etc.)?

Here again it is essential that descriptors be selected from the thesaurus proper with full consideration of the fields, groups and scope notes. This will provide the best selection of descriptors since it is precisely the manner in which descriptors have been assigned to documents in the system.

With the information in the request, the analyst decides the best method for organizing the computer search, determines whether one or more searches will be needed, and selects the required descriptors and co-ordinations for each such as *and*, *and/or* and *not*.

After the descriptors have been selected and the levels and types of co-ordinations determined by the reference analysts, the Data Processing Division runs the retrieval searches on the computer. The complete system is fully described in *Evolution of the ASTIA automated search and retrieval system*, AD 252 000. For the purpose of this paper it is sufficient to say that we can handle up to ten searches simultaneously with no practical limit to the number of retrieval terms per bibliography and, if desired, governed by a chronological cut-off in terms of the ASTIA document (AD) number.

Descriptor code number, level and type of co-ordination and ASTIA Report Bibliography (ARB) number are key punched into cards for all the bibliographies to be searched in one computer run. These punch cards are sorted by descriptor code number and used as input to the computer for the run. The computer merges the input data for all the searches and handles the process as one massive search. Our retrieval file is term oriented, i.e. descriptor code followed by AD number. Therefore, the search involves only those descriptors represented in the various bibliographies. When the search is finished, the computer punches out a card for each AD number for each bibliography. The punch card, in each case, reflects the AD number, the search level, the search number and the ARB number. The search number is set up in such a way that with one pass through a sorter the punch cards are segregated according to ARB number.

In some cases greater specificity can be achieved by using open-ended terms as well as descriptors. We have not recorded the open-ended term assignments on magnetic tape. Instead we retain the information in the form of punch card decks. Thus we have a means of random access to this data since the desired deck(s) can be entered into the computer for co-ordination with the document numbers which resulted from a descriptor search. A number of ways exist for compressing the open-ended term decks which will effectively increase the rate of search in this approach.

OUTPUT (BIBLIOGRAPHY)

As was just mentioned, the result of the computer retrieval run is a deck of punched cards for each bibliography. Each deck is then used for manually selecting the appropriate catalog cards from our catalog card stock. At present, about 25 per cent of these bibliographies are sent out with no more screening than segregation of the classified cards; about 50 per cent are sent out with only a cursory inspection of the cards for pertinence to the bibliography requested; and the remaining 25 per cent are given very careful scrutiny for pertinence.

This procedure is extremely cumbersome. It leaves opportunity for inadvertent inclusion of an erroneous AD number because of mental transposition; it is time-consuming; and it is most undesirable from the point of view of the requirement for replenishing certain cards when the stock is exhausted.

We, therefore, are strongly motivated to devise a better method of producing the end item which is furnished the requester. The computer we use has a six hundred line per minute printer. *If* the bibliographic entries were available in machinable form, we could print out the information in two parallel columns giving an effective rate of 1,200 lines per minute. With an average of three hundred entries per bibliography and an average of about thirty lines per entry, we could handle the print-out in about seven and a half to ten minutes per bibliography. In order to get the bibliographic entries into a machinable form we are preparing copy for the *Technical Abstract Bulletin* (TAB) on punched paper tape machines. These record the information in a form which can be converted to magnetic tape for subsequent print-out. There are at present two formidable obstacles: first, the variety of special characters encountered in about 10 per cent of the entries (these can be verbalized in most cases); second, workloads in terms of bibliography requests, entries per bibliography and computer applications have grown to the extent that machine printing is no longer considered feasible at least as an on-line operation. We have initiated action to supplement our present ADPS. The supplemental equipment will provide increased time for bibliography print-out and at the same time will result in an expanded capability in terms of the computer operations.

In the meantime ASTIA is investigating other possibilities for more effectively providing the bibliographies to requesters. One of these is automatic selection from microfilm. This is a rather time-consuming process which involves making a contact print on film of the desired entries. This film would then have to be photographically processed and then enlarged by means of our Xerox Copyflo (electro-static continuous process equipment). The output of this equipment would then have to be cut and stapled. The system has the advantage that it could be implemented fairly painlessly simply by microfilming our catalog cards and coding each frame by AD number. Another important advantage is that such equipment already exists.

We are also investigating more advanced systems using video tape techniques. In this type of system the desired entries would be copied electronically on an output tape. This tape would then be ready for print-out using electronic enlargement via a reader which roughly approximates a conventional television set and an electrostatic printing process. Most of the elements of this type of system already exist. The final step, i.e. production of hard copy, is the only really tricky part of the problem. Even this step has been accomplished in the data processing field. The system would be much faster than a microfilming process and can be almost completely automated. This type of system also has the advantage that it can be implemented rather painlessly by a process that is quite similar to microfilming. As with microfilming it uses an image recording technique, hence is not plagued with the special character problem.

SYSTEM ANALYSIS AND EVALUATION

We in ASTIA are the first to admit that the thesaurus of ASTIA descriptors must be thoroughly evaluated and revised as necessary. We realize that it will take time to do this effectively. We are concerned about the adequacy of descriptors and their definitions, the scope notes and references to other descriptors. We are concerned about the extent to which hierarchy should be incorporated. Essentially, we have devised a structureless system because we believe that this is the best approach to automation of information retrieval. Nevertheless, there are segments of human knowledge in which hierarchy seems to be particularly important. We will investigate this aspect of our thesaurus. Another area of concern is the categorization of descriptors by groups. Assignment of descriptors to groups was determined initially by the way in which the concepts were utilized in the documents that constitute our most recent collection. Analysis may show that in some instances the assignment has been erroneous and that we need to transfer certain descriptors from one group to another. It is possible that we will have to provide for indicating which descriptors are associated with other descriptors assigned to a given document. Here I am not speaking of 'role indicators'. I think our definition of descriptors is sufficiently rigid as to hold ambiguity to a practical minimum. I am referring to the fact that among the descriptors assigned to a document there will be some which have no association with others in terms of the information represented. Should it become necessary to indicate which descriptors are associated, we have the means of doing it.

The bibliography requests must be evaluated on the basis of the requester's comprehension of the thesaurus and ASTIA's use of the descriptors. Obviously, it will take time for the users of the service to become familiar with the thesaurus to an extent which would permit retrieval searches based on the requester's selection of descriptors. At present our bibliographers spend two or three hours per bibliography request interpreting that request in terms of descriptors, deciding how and at what levels of search they should be used. Our objective is to have requesters specify which descriptors they want coordinated, how and at what level of search.

The bibliographies must be evaluated in terms of shortcomings. The shortcomings must be analyzed as to cause, i.e. indexing, analysis for assigning retrieval terms and search. We know some deficiencies will result because of inadequate or incorrect assignment of descriptors to the bibliography request and still other deficiencies will result from inadequacies of our program for searching. Because computer costs represent an appreciable part of our total budget, we are interested in the most effective use of the computer in each application. In the case of bibliographies for a given search programme, a significant factor is the time span to be covered. Can ASTIA legitimately force an arbitrary cut-off of say three years? Or five years? If the answer in both of the foregoing questions is no, can we expect the requester to wait a few days while we accumulate other requests involving a time span longer than that specified in the majority of requests? If the answer to this question is yes, we can optimize our computer runs for information retrieval. Obviously, there is no point in optimizing computer usage if we don't satisfy our users.

In our analysis and evaluation we are convinced that it is necessary to look at the complete system. By this I mean not only the inputs and outputs of our internal operations but the users of the service, the originators of the reports and the environment in which ASTIA operates. Time does not permit adequate discussion here of our plans for such evaluation. However, you will be interested to know that the computer is being used extensively in gathering statistics on frequency of use of the descriptors and in printing out this information in various arrangements. The different arrangements of such information permit analysis of descriptor assignment. Thus we can compare *actual* use with *planned* use of the descriptors. In addition this information is extremely valuable in determining how to set up the search for a specific bibliography. It is planned to use the computer for a print-out of descriptors that have been used with a given descriptor. The possibilities are seemingly endless. Part of our task will be to determine which of all the possibilities is worth while. Of particular importance to our users is the fact that our computer has made it possible to produce cumulative indexes. All 1960 domestic TABs are covered by an annual cumulative index which replaced the first three quarterly indexes. The system evaluation must consider opportunities for enhancing the usefulness of these indexes. For example, initially we produced the Descriptor, Source and Numerical Indexes. In each case we cited only the AD number and the TAB and division (of TAB) in which the entry had been listed. We have recently added source and monitoring agency report numbers to the Source Index. We believe this will considerably improve the usefulness of the Source Index. All aspects of document indexing, bibliography analysis and machine search plus machine-prepared indexes must be carefully analyzed and evaluated in order to optimize the complete system.

Our service is largely in terms of documents and bibliographies which are citations of documents. Feedback in the form of comments on individual document requests could only be in the form of complaints for delay or praise for promptness. Our record for promptness has seen dramatic improvement despite continually increasing workloads, and we hope to make our current record in this regard even better.

Of particular concern is our lack of customer response to machine-prepared bibliographies. The few responses we have received have been highly complimentary; and although praise is always gratifying, it can be singularly unhelpful. If the amount of published reference to the so-called problem of 'false drops' attendant upon machine co-ordination is a valid indication of the concern for this problem by theorists as well as operational librarians, you can imagine that we at ASTIA have also been concerned with this aspect of machine retrieval. You will also imagine our concern when faced with a continuously rising demand for bibliographies, a continuous increase in our use of machine-prepared bibliographies (up to two hundred and fifty a month), and a continued lack of customer response in terms of evaluating those bibliographies.

Part of the difficulty may be that our customers for bibliographies are located throughout the United States, and consequently we have little or no face-to-face contact with this segment of our users. On the other hand, the known inability of organizational librarians to obtain feedback from their own users may negate the importance of this factor. Whatever the reason, lack of feedback forces us to rely on our crystal ball.

REFINEMENTS

As the evaluation progresses, the thesaurus will be revised. Some descriptors will be dropped; some will be added; and others will be regrouped. Even the groups and fields in some cases may be rearranged or redesignated, and some of these may be dropped. In February 1961 we published *Guidelines for using ASTIA descriptors*. It is anticipated that the first revision of the thesaurus will incorporate the *Guidelines* for the convenience of our users. However, we do not expect to discontinue the *Guidelines* as a separate publication. Revisions to the thesaurus should result in improved understanding on the part of the user. This, in turn, should permit more effective specification of bibliography requests. As the users become accustomed to the new system, we hope they will gain confidence in it. This should produce further improvement in the specification of bibliography requests.

We expect that the revised thesaurus will provide the basis for more accurate indexing. We are confident that changes can be reflected (through using the computer) in the indexing of documents that are already in the system. Thus, bibliographies will become more timely and more specifically matched to the requester's requirements. This improvement in bibliographies will depend to a large extent on the success of requesters (or our bibliographers) in stating the bibliography request.

In addition to all the foregoing considerations, refinements in system effectiveness will produce deeper, more careful indexing, more precise retrieval and more satisfactory bibliography service. The indexes which we provide our users will be improved, thus facilitating their own access to information available from ASTIA. We expect that improved reference material in the hands of our users will have a beneficial effect on the number of documents requested. By this, I mean that fewer documents will be ordered needlessly and we should receive fewer requests which do not cite an ASTIA catalog number. The net result should be continued improvement in our document request service by virtue of more effective use of our resources.

WHAT NEXT?

Recently, authorities on the twin subjects of management and automatic data processing have been pointing out a rather significant effect that results from the successful installation and operation of an automatic data processing system. This is that the chief of the organization finds that he has more time to devote to contacts outside the organization. These contacts usually have a direct bearing on the mission of the organization. In this respect ASTIA is no exception.

We had barely demonstrated a successful application of our ADPS when our outside contacts resulted in a request that we work up a brief proposal for the *D*irector of *D*efense Research and *E*ngineering (DDR & E). This proposal was to cover automation of information retrieval from a file covering active research and development projects of Agencies of the Department of Defense. These projects consist of tasks which, in turn, frequently consists of subtasks or contracts. Altogether they represent the Research, *D*evelopment, *T*est and *E*valuation *P*rogram (RDT & E Program).

Following a study of our brief proposal at the DDR & E level, we were requested to prepare a rather detailed proposal covering RDT & E Program information in the field of Basic Research. This proposal was approved and in January 1961 we were assigned responsibility for: 1, Indexing and storing specific information concerning the RDT & E Program, and 2, Retrieving specific information concerning the RDT & E Program. Thus, for the first time the Department of Defense will be able to ascertain what research, development, test and evaluation projects and tasks have existed or are currently active on any subject, or monitored by any specified agency. At present, our activities in this new area are confined to Basic Research. We expect to be assigned the rest of the program in the very near future.

As stated earlier, in this activity we are indexing and storing specific information and will retrieve specific information. Hence, we are just now getting into what can truly be called information retrieval. In our documentation activities, what we have called information retrieval is really document identification in terms of subject matter or source or some other aspect. This is not to say that we have wasted our efforts in our documentation activities. It would be prohibitively costly to treat technical documentation in the same way as the RDT & E Program information. But, because the latter information is being indexed by the same descriptors as are used in the documentation and because contracts are being identified where pertinent, this RDT & E Program information can be correlated with the technical documentation. This will provide the *results* of specific R & D activities in progress or completed in addition to identifying projects or tasks. We designed a system that is open-ended in the sense that it can incorporate any reasonable amount of information. Hence, if the reporting system includes findings on the effort to date, these findings could be incorporated into our system and would be available to any qualified requester.

A corollary benefit which results from the correlation of RDT & E Program information with technical documentation is the identification of organizations and individuals having a capability in the specific subject area involved. We do not propose to carry this to the point of identifying every person who shares in a particular project or task. We do propose to identify the responsible project officer or principal investigator (and the respective organization) for each project, task or contract.

This kind of information can be of great value to scientists and engineers in terms of contacting someone who has been or is currently engaged in a specific subject area. It can also be of great value to procurement activities in establishing bidders lists for projects and tasks that are reaching the procurement stage.

WHAT NEXT NOW?

Since we have come this far, one might assume that we could relax a bit. However, such is not the case. Already, workloads for which we had planned, augmented by some which we did not foresee, are rapidly approaching the absolute limits of our present ADPS. We expect to install supplemental equipment later this year. But even this is only a stop-gap measure. We are now actively planning for a much more powerful system. We hope the next one will be capable of all the expansion we may need. At this point in time we know we will be assigned additional responsibilities, and we are reasonably certain that whatever our next ADPS it will have to be expanded from time to time in order to keep pace with requirements.

PRACTICAL EXPERIENCE WITH THE ASM METALLURGICAL LITERATURE CLASSIFICATION

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IN 1953, Mr P. E. Colinese contributed to *Aslib Proceedings* a paper[1] explaining why the British Iron and Steel Research Association had adopted the ASM/SLA Metallurgical Literature Classification to deal with its research reports.

The present paper reports on the experience now gained by BISRA in operating this system and outlines the modifications which have been made. Since BISRA receives many inquiries about the practicability of using ASM it is proposed to include a fair amount of the internal history; normally, such details are of little concern to people outside an organization, but in this case it is probable that others coming to use ASM may be able to benefit by our mistakes.

PRESENT POSITION

1. BISRA is still using the ASM/SLA Metallurgical Literature Classification for classifying its research reports.

2. It switched to using the Second Edition of the Classification at the date of its appearance (1958–9).

3. It has abandoned the use of hand-sorted punched cards and now classifies on to ordinary 5 × 3 in. record cards.

The reasons for these decisions will become clear in the subsequent account.

BISRA'S PREFERENCE FOR ASM CLASSIFICATION

A brief guide to the structure of ASM is given in Appendix 1, although the full account of the classification should, of course, be studied in the Second Edition[2]. BISRA adopted it in 1953 after carefully surveying possible classifications, its main attraction being that it was specifically for metallurgical subjects. Another powerful reason was that relatively non-technical people can undertake retrieval of information by themselves—using the alphabetical subject-index to the classification—or can be easily guided in what to do. Assigning classification codes, however, can only be efficiently done by someone with a general understanding of metals technology and the resource to unravel technical terminology. Even so, it was felt that the normal senior grade of information worker would be able to master and use the system considerably quicker than, say, UDC, and this has been borne out in practice. The situation in BISRA's Information Section since 1953 has always been one of shortage of 'technical' personnel and the greater abundance of non-technical and clerical staff, and this has been a good reason for continuing with ASM. As staff have changed over the years it has been interesting to observe the relative ease with which the classification has been grasped by those newly charged to assign the codings. At one time, as a check on accuracy, codings were made at the London headquarters and scrutinized at the library of the Sheffield Laboratories (and vice-versa). Very considerable unanimity of opinion was found in practice and this was thought to be an advantage over other systems. The common saying that different users of the same classification tend to 'speak the same language but with a different accent' does not seem to apply to ASM.

Its lack of refinement in comparison with UDC is, in the writer's view, a strong argument for its use. There are far fewer occasions when differences in interpretation of the classification arise.

THE SIZE OF BISRA'S PROBLEM

Contrary to popular belief, BISRA does not itself attempt to keep control over the whole field of ferrous metallurgical literature. We do not abstract the general literature, since this service is provided comprehensively and efficiently for our particular industry by The Iron and Steel Institute[3].

Our aim is a much more modest one: to control BISRA's *own* literature. Our output is, of course, but a fraction of general metallurgical literature; in 1959, it amounted to about two hundred and fifty items, mainly in the form of mimeographed research reports. Furthermore, BISRA is a young organization and has been producing literature only since 1946, so that there has not yet been sufficient time for its output to become unmanageable.

BISRA's report literature is notified and offered (in the first instance) to its member-firms by means of a *Restricted Report List*, which appears every two months. This *Report List* gives the bibliographical reference, plus an abstract, of all research reports currently being offered; members complete a form stating which reports they want sent to them.

Internally, therefore, the problem is simply to classify the abstracts in BISRA's *Report List*, so that subject selection is possible. There are no difficulties, of course, with the related requirements of author indexing and numerical indexing (each research report bears a numerical reference, which is the basis of internal filing).

Inquiries for reports reach BISRA in the same forms that they reach any information service:

a. to locate a specific document, when one or more of the component parts of the reference may be unknown or garbled,

b. to locate *all* the documents on a given topic.

It was thought by BISRA in 1953 that the use of punched-card coding (and more particularly according to the ASM system) would enable these inquiries to be efficiently handled. It is now felt that this initial estimate was too optimistic.

EXPERIENCE WITH THE PUNCHED CARDS

ASM codes were assigned to each report by hand writing the symbols in the margin against the relevant report in the *Report List*. The *List* symbols were,

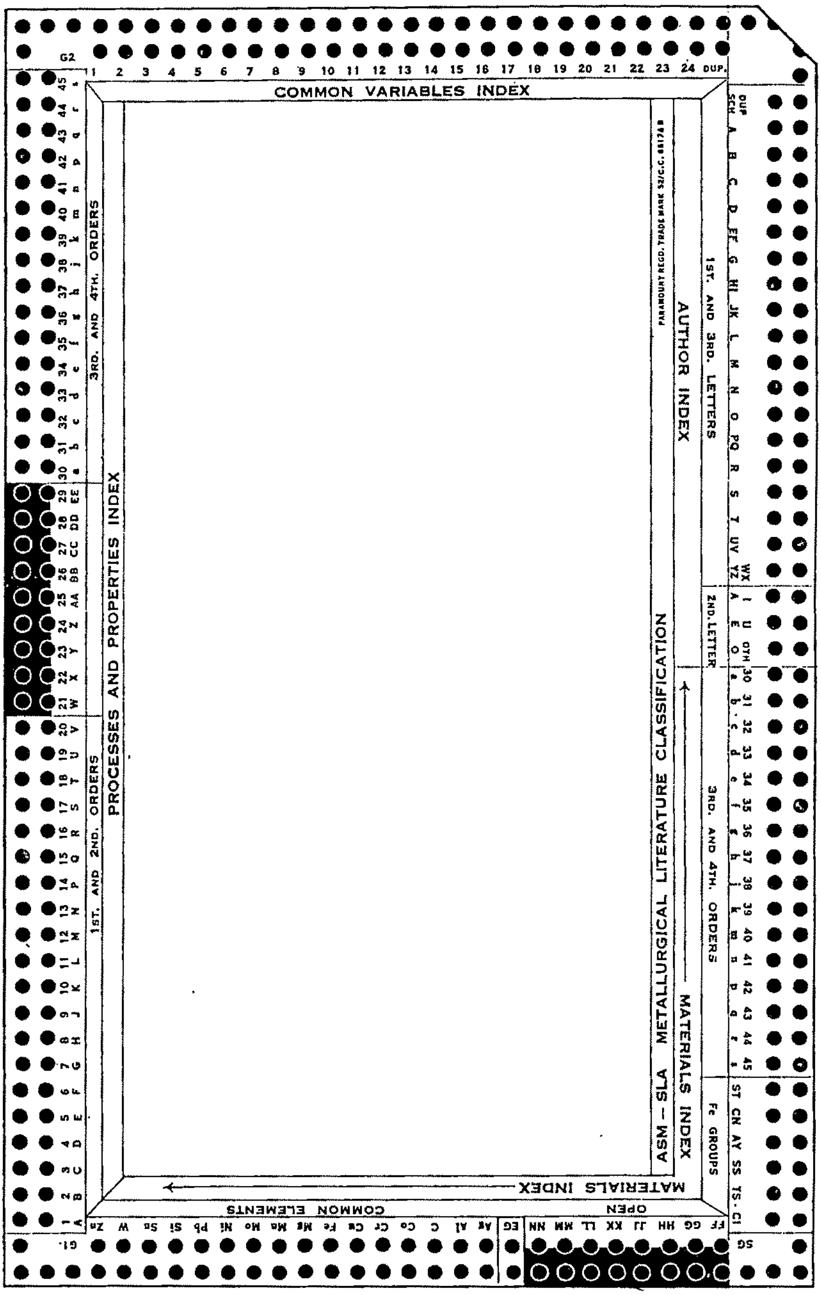


FIGURE 1. *ASM punched card: original pattern*

as far as possible, checked and verified by some other member of staff and divergencies resolved. The Reports Index was then set up by allotting one punched card (Fig. 1) to each research report. The title, authors, references, and list numbers were typed on to the cards, and a junior member of staff wielded a pair of clippers to punch out the holes around the edges according to the annotations in the *List*. The cards were then filed in a cabinet ready for use.

Surprisingly, these seemingly routine operations are fraught with opportunities for mistakes and confusion. Since other users will meet the same problems in practice it may be as well to detail them.

1. *Hand writing the codes*. Many instances of confusion arose in the hand writing of figure '1' (misread as lowercase 'l'), lowercase 's' (misread as figure '5'), lowercase 'g' (misread as figure '9'), and so on. The symbol 'CI' (cast iron) was sometimes rendered as 'C1'. It is worth experimenting with an unambiguous form of handwriting, in fact, in the same way that some people put a stroke through '7' to distinguish it from '1'.

(Note that the library at the Sheffield laboratories eliminated handwriting and copy-typing problems by cutting entries from the *Report List* and pasting them on to the punched cards.)

2. *Record of classifications*. No attempt was made in the early days to retain master copies of the *Report Lists* in which the coding had been marked. As no one at the London headquarters thought to mark the symbols on the individual cards, either, it was impossible to check the accuracy of coding at a later date. One could not even be sure that *all* the reports on a given *List* had been dealt with—there was no means of telling, short of rearranging all the cards in order of *List* number and making a physical check. (Symbols for each report *were* included on the punched cards held in Sheffield.)

3. *Typing reference data on the cards*. Over the years, with a succession of typists, this was done rather haphazardly and with varying degrees of skill. Little uniformity resulted and the usual muddled and irritating collection of references grew up, the customary penalty for using (in effect) blank record cards. A record card is much more efficient if there are definite boxes printed on it in which to place the same sort of data as between one card and the next.

4. *Punching the holes*. This was prone to error, through boredom and lack of understanding on the part of the 'clipper'. No quick check could be made on the accuracy of punching, owing to the absence of codings on the cards themselves. Furthermore (see Fig. 2), badly punched holes leave a little projection which very efficiently retains cards on the needle when they are supposed to drop. There was a lot of worry expressed in the literature that ASM would lead to many 'false drops'; in fact this is accompanied by the far more serious 'false holds', owing to this poor punching.

In fairness, it should be mentioned that BISRA had bought parallel-sided clippers instead of those which give a V-shaped notch. This mistake aggravates the risk of bad punching and the production of the retaining notch.

5. *Filing the cards*. Even the simple matter of finding a home for the card collection was not straightforward. They are of a strange size (9¼ × 6 in.), not comparable to English standard boxes, and in BISRA's case two special wooden cabinets were eventually made, together with a supporting table.

These rapidly filled up and, as an interim measure, all the 'older' cards (covering reports issued from 1946 to 1952) were weeded out and stored in a cardboard box near by.

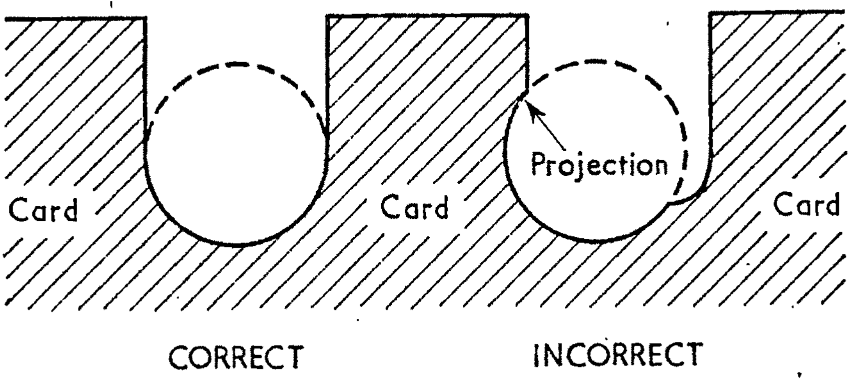


FIGURE 2. *Edge-notching: parallel-sided clippers*

DEVELOPMENTS IN USE

When the present writer first became concerned with the Reports Index (during 1957) he was met with a rather depressing situation, which continued until the end of 1958 when the modifications were made.

In practice, the Index was continuing to be compiled for each new batch of reports—the difficulties outlined in the preceding section gradually coming to his notice—but the staff responsible for using the Index to answer the constant stream of inquiries being received were resorting to the punched cards only in the last extremity, when all other means had failed. It also soon became apparent that the 1946–52 cards, tucked away in their own box, were not even being searched at all.

A little inquiry and experiment established the basic cause of the reluctance to consult the cards: the extreme laboriousness of the hand-needling sorting operation. Allied to this was the inefficiency of the process—the fairly considerable number of 'false drops' and the (really serious) 'false holds'—and the hopeless feeling when faced with an urgent inquiry, e.g. by telephone. When somebody rings to ask 'what reports has BISRA issued on overhead cranes' it is not very politic to say 'please allow us thirty-five minutes to needle through our card collection and we'll be able to give you an answer which is about 80 per cent complete'.

Non-users of hand-needling equipment are usually very enthusiastic when they read the sales literature, but quite quickly become disillusioned when they actually come to handle the equipment in practice. They soon find that unfortunately people normally have only two hands: if one is grasping a pack of cards, only *one* position can be needled with the free hand. Short of the incredibly tedious repeated needling as finer and finer subdivisions are explored (and this is quite visionary for a collection of 5,000 cards) one can attempt to use two needles at once, to at least sort two positions simultaneously. This uses up both hands and the practical result, irrespective of the talk in the sales literature, is an alarming number of 'false holds'—by friction between cards, aggravated by the inaccurate hole punching alluded to before. Another irritation is the difficulty of pushing needles through adjacent holes at the same time: the handles get in each other's way.

And how fundamentally absurd it is that if a *single* item is required from the cards, rather than all cards on the same topic, every card in the collection has to be examined. This is really searching for a needle in a haystack.

Presented with these difficulties, the writer urged a thorough examination of the use of ASM within BISRA to see what remedial steps should be taken. He argued for splitting the problem into its two component parts and for keeping the distinction between them clear:

a. was the classification a satisfactory one in itself for BISRA's needs?

b. were we applying it in a satisfactory way?

Very detailed and useful discussions over a long period took place, encouraged by the former information officer, and everyone was agreed that ASM suited BISRA admirably. (Readers interested in some of the *objections* to ASM may care to consult Appendix 2, where these are detailed.)

The consensus of opinion, furthermore, was that applying ASM by means of hand-sorted punched cards was a mistake in our circumstances, but that equally any change-over at this stage would be visionary. The thought of abandoning the tremendous store of cards already in existence was held to militate against changing the system. It was thought better to try to find ways of making the punched cards work instead.

Several ideas presented themselves. The first was to try to reduce the number of cards which needed to be searched at any one operation. This had tacitly grown up around the 1946–52 set, in any case, where it was felt that omitting them from the search altogether was not serious for inquiries wanting subject-lists, since the older reports tended to have been superseded by later ones in practice.

A kind of pre-sorting was experimented with as follows: each card was examined for its punching in the most widely used part of the classification, namely the 'Processes and Properties' index. This is the part which gives rise to such codings as 'A5', 'B10', 'C4', etc.; a given card, on the average, has two or three punchings in the field. A reverse filing was set up, so that a card punched at 'A', 'C' and 'T' was placed behind a divider marked 'T'; one punched at 'B' and 'C' was stored behind a divider marked 'C', and so on, the letter lowest in the alphabet determining in which division the card was placed. If, then, one was needle-sorting for 'J5' only those cards in divisions 'A' to 'J' inclusive needed to be searched, since there could not be any holes at spaces 'K' onwards.

Needless to say, an artifice of this sort completely nullifies one of the oft-quoted advantages of punched cards—that they can be filed in random order. (It was also interesting to observe that users of our cards had come to a similar decision empirically, long before the pre-sorting experiment. The cabinet was often found to contain batches of cards fastened together with a rubber-band. On inquiry, one was told that as a search on a popular subject had been completed, it was a pity to 'lose' all the cards again in the general melee, as inevitably they would be needed in the near future.)

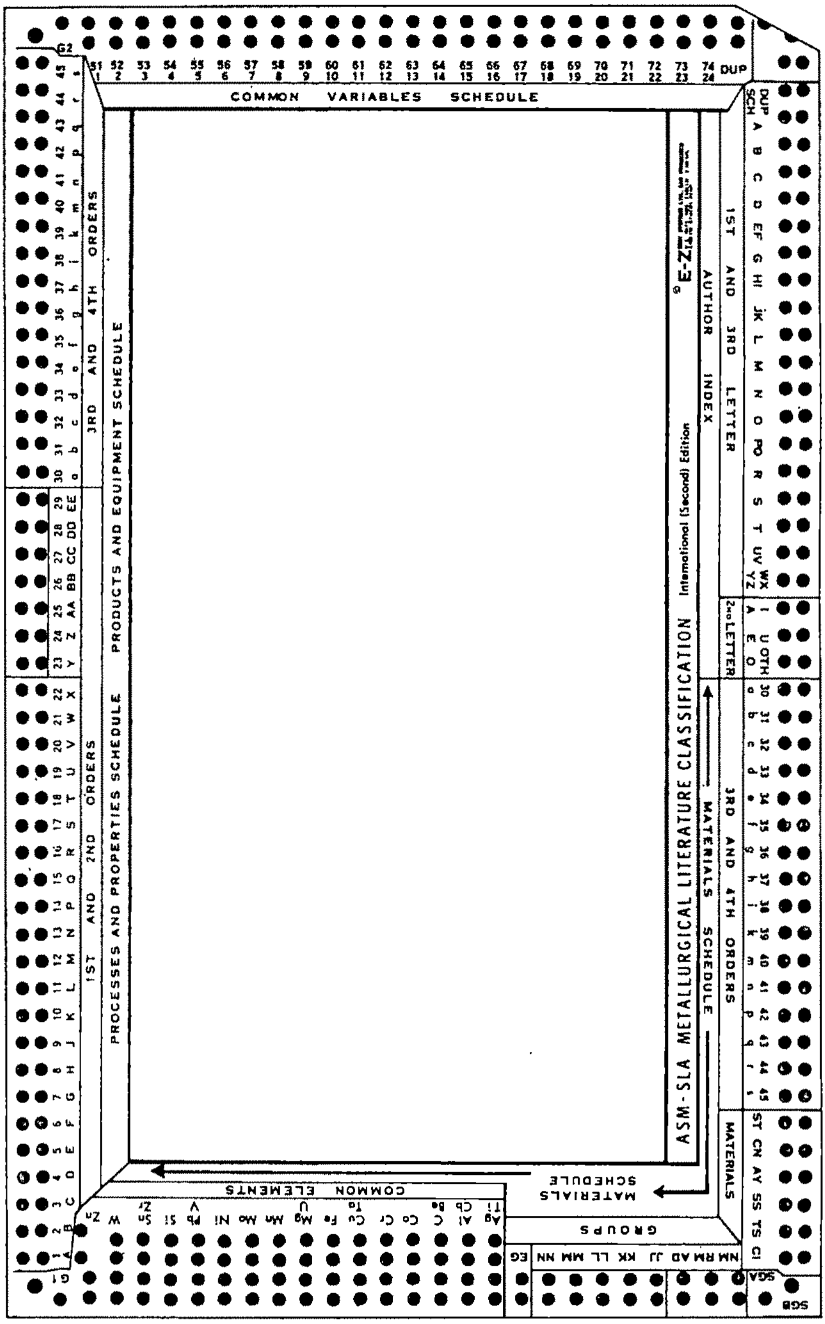

COMMON VARIABLES SCHEDULE
DUP
SCH
3RD AND 4TH ORDERS
1ST AND 2ND ORDERS
PRODUCTS AND EQUIPMENT SCHEDULE
PROCESSES AND PROPERTIES SCHEDULE
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION International (Second) Edition
E-Z
AUTHOR INDEX
1ST AND 3RD LETTER
2ND LETTER
MATERIALS SCHEDULE
MATERIALS
GROUPS
COMMON ELEMENTS
G1
G2
SGA
SGB

FIGURE 3. *ASM punched card: revised pattern*

Pre-sorting was hardly successful and was quickly abandoned. The necessity of keeping cards in the correct divisions made it unpopular and such a large proportion were punched at letter 'W' (works equipment), low in the alphabet, that searching time was not cut down sufficiently to make the method attractive. The pre-sorting had also no contribution to make at all to the coding of materials, common elements, or common variables; if a search for any of these was to be made, all the cards had to be gone through as usual.

A much more successful pre-sorting experiment was tried at the Sheffield library, where the subject breakdown into broad headings employed by the abstracts section of the *Journal of the Iron and Steel Institute* was adopted. The punched cards were then filed under such headings as 'Production of steel', 'Foundry practice', 'Reheating furnaces and soaking pits', etc. Although at times this called for searching large numbers of cards, the chances of missing a particular report were negligible.

Another idea canvassed was that it might be worth while making up subject lists which would supersede the card collection in time. The theory was that the cards would be sorted first of all for all those which had a single punching, and suitable lists would be typed and stencilled. Then, those with two punchings would be examined, then those with three, and so on, until all the information from all the cards had been retransformed to list form. This enterprise foundered through pressure of work, and in the event, the writer managed to produce but one subject list[4].

A further investigation was the obvious one: if hand sorting was so tedious, would mechanical sorting be worth pursuing? Unfortunately it was soon discovered that there was no machine available in the United Kingdom which would sort ASM cards, because the American spacing of the holes around the cards differs from the British. British suppliers were ready either to build a special machine for the job or to show us how ASM cards could be recoded to fit their own system. The idea of a special machine was ruled out on grounds of expense, and recoding tended to make the system too complicated.

APPEARANCE OF REVISED CLASSIFICATION

Towards the end of 1958 the American Society for Metals issued a very much improved classification[2], based upon the experiences of users during the preceding eight years. Not only were many new subjects covered (those which had come into prominence following advances in metallurgy) but a schedule of products and equipment ('T', 'W' and 'X') was introduced, of particular value to BISRA. The Committee responsible for revising the classification had made a thorough and useful job of it and had tried to inconvenience current users (of the original edition of their handbook) as little as possible. Nevertheless, many renumberings had taken place, e.g. throughout the Common Variables Schedule; furthermore, the punched card had been redesigned (see Fig. 3)[5].

These events finally resolved BISRA's difficulties and modifications were brought into effect early in 1959.

MODIFICATIONS

As from this date no more punched cards have been compiled. Instead the writer has introduced ordinary record (5 × 3 in.) cards preprinted as shown (Fig. 4). If a given report has three codings, three separate cards are typed and filed behind normal alphabetical and numerical dividers. Thus, although more time is consumed in compiling the Index, it is handsomely recovered at the place where it is needed most—retrieval. It is even possible to answer a telephoned inquiry on the spot, since it is a matter of a few seconds only to find the cards with a given classification.

In reference to Fig. 4, the boxes contain the following information:

'List No.': the serial number of the *BISRA Report List.*
'Report No.': internal reference number of research report.
'Title' and 'Authors' of research report.
'Reference' to periodical, if the report is subsequently openly published.
'Classification': here are displayed *all* the codings for the given report. They are then picked out one at a time and placed in the box at the top right-hand corner.

Within each coding (e.g. A3g = Academic education) there may well be quite a number of cards. In our case they are filed in reverse order of list number, as this will in practice bring the most up-to-date reports nearest to hand, which is convenient for our purpose. Alternatively, cards with the same codes could be filed in author or reference-number order.

It is interesting to observe how many cards are generated on the average by this method of multiple recording. Here are the figures relating to the period January 1959 to May 1960:

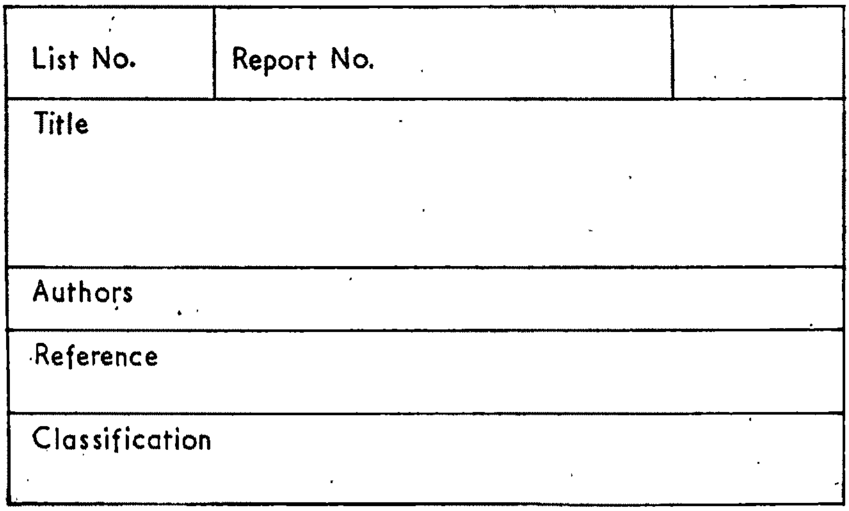
	Report List No.	*Reports listed*	*Cards prepared*
1959	99	37	106
	100	29	69
	101	37	87
	102	29	78
	103	24	79
	104	24	50
	105	18	51
	106	22	40
1960	107	36	78
	108	31	80
	109	23	89
		310	757

This indicates that each report generates, on the average, 2.4 cards and with the comparatively small output of about 250 reports per year, the card collection grows at the rate of 600 per year. This is not considered excessive.

Apart from the rapidity of retrieval, such a card collection is easily amenable to the preparation of cumulated lists, as required. It is quite easy to remove, say, all the cards coded A3g, have them copied, and return them *en bloc* to the box. There is no reason, however, why a single card (cross-referring to the cumulated list) should not then replace the block of cards. If this were done systematically it could materially reduce the bulk of the card index and help overcome the disadvantage of multiple recording.

Another advantage of using cards has been that greater cross-referencing is possible. With punched cards it was not wise to punch too many holes close together, since damage easily resulted from the breaking-off of the narrow fragments of card between adjacent notches. Since cross-referencing often requires a whole series of related (adjacent) codes, this situation was an occasional problem.

The problem of what to do with the punched-card collection, now superseded, has been solved, albeit in a rather depressing way. A subject-index in list form is being prepared directly from the *Report Lists* and the punched cards will simply be destroyed in due course.



List No.
Report No.
Title
Authors
Reference
Classification

FIGURE 4. *BISRA record card for use with ASM classification*

ALPHABETICAL SUBJECT INDEX

An integral part of the new scheme was to inaugurate an alphabetical subject index. The first time any particular ASM code was used, appropriate subject (5 × 3 in.) cards were prepared, e.g.

Academic education	A3g
Education, academic	A3g

This gives an opportunity for *see* and *see also* cards, if desired, and has a number of other advantages.

The ASM Classification itself contains an extensive subject index and the present writer inherited that which had served BISRA during the currency of the punched cards. Although a proper 'work book' had been obtained from the ASM, in which to enter neatly amendments and additions, in practice annotations had been scribbled in varying degrees of legibility in the margins of the ASM Classification handbook. It was often impossible to know what these annotations meant after the lapse of years.

Simultaneously with the switch-over to ordinary instead of punched cards, a 'master' reference copy of each classified *Report List* was put aside and marked with the names of those who had classified the reports and who had checked them. Pains were also taken to see that the handwritten codes were legible and unambiguous.

The subject-index cards also serve as a record of the continuing development of the Classification in use:

a. for new subjects. BISRA has need of parochial classifications, e.g. for its conferences, and for reports relating to its various laboratories. In ASM practice, the user allots new code numbers to suit his own requirements. On the subject cards (and in the master copy of the *Report List*) any new classifications are shown in square brackets.

b. for interpreting existing classifications. It is occasionally necessary to decide that an existing ASM code covers some particular facet of BISRA work, i.e. that it is unnecessary to allot a new classification. An example of this is Crane Controllers, which is held to be covered by W12g, Cranes and elevators. These are known as "interpretations" and are indicated on the subject cards and in the master *Report List* by an asterisk.

Another advantage of preparing subject-index cards is that they are static in space: they will normally be filed in the same cabinet as the ASM index cards themselves, so that everyone knows where to locate them. This saves much fruitless searching for the annotated handbook or workbook which always has a tendency to end up in somebody or other's desk.

CONCLUSION

It is evident that there is a wide interest in the use of ASM for classifying metallurgical literature: BISRA continues to receive many inquiries from prospective users wanting to learn of our experience before taking final decisions.

If users' circumstances at all resemble those operating within BISRA, the ASM classification can certainly be confidently recommended. If the codings are made intelligently and consistently, there is no doubt that retrieval is easy. It has been found in practice, however, that newcomers to the classification tend to classify in unnecessarily great detail and this is a tendency to be resisted. It contributes little to the ease of retrieval and clutters the system.

The paper has attempted to show that hand-sorted punched cards are rather overrated for this application and our advice is always to think very carefully before spoiling such a good tool as ASM with such a clumsy and inefficient way of using it. BISRA has progressed to the method of multiple recording on different cards to cover all the separate classifications assigned to a given document. This is applicable since the total number of documents is relatively small. No doubt other users, faced with a very large document collection, might need to investigate other methods, such as centre-punched cards, punched tape, or magnetic tape. The American Society for Metals, in fact, have moved in this direction and after many years of research have fully mechanized their information searching service[6].

But the normal smaller user, faced with limited staff and budgets, may perhaps profit by BISRA's experience. Probably the basic question to be settled is always whether convenience is sought at the stage of compilation or retrieval. Anyone purporting to offer a service will more than likely plump for ease of retrieval and this has been a determining factor in BISRA's case.

Acknowledgments. I am grateful for the comments received from Mr K. W. Atkin (Librarian, BISRA Laboratories, Sheffield) and for helpful discussions with Mr J. P. Saville (Information Officer, The Iron and Steel Institute).

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3. *See* 'Abstracts of current literature and book notices [pertaining to] iron and steel manufacture and related subjects' appearing monthly in the *Journal of the Iron and Steel Institute*. Since January 1960 these abstracts have also been available on index cards, ready classified (by UDC).
4. *Catalogue of BISRA publications: Topic 1: Ergonomics*. BISRA Report Inf/18/58 (revised).
5. The revised cards are distributed by: Lee F. Kollie Associates Inc., 236 North Clark Street, Chicago 1, Illinois, USA. They cost $27.50 per 1,000 cards (minimum order).
6. Full details are available from Marjorie R. Hyslop, ASM Documentation Service, American Society for Metals, Metals Park, Novelty, Ohio, USA.

APPENDIX 1

BRIEF OUTLINE OF THE STRUCTURE OF THE ASM/SLA METALLURGICAL LITERATURE CLASSIFICATION

The subject-matter of metallurgy is analysed into broad divisions further subdivided, as required.

1. *Processes and Properties* are main ('first-order') divisions, indicated by capital letters, e.g.:

General metallurgy = A
Iron and steelmaking = D
Cleaning, coating, and finishing = L

Three first-order divisions are reserved for *Products and Equipment*, namely:

Metal products and parts = T
Plant equipment = W
Instrumentation; laboratory and control equipment = X

First-order divisions are subdivided ('second-order'), using numerals, e.g.:

D Iron and steelmaking
  1. Blast furnace practice
  2. Open-hearth practice
  3. Converter processes
  5. Electric arc processes, etc.

Further subdivisions ('third-order') give closer detail, and are indicated by lower case letters, e.g.:

D2 Open hearth practice
- a. Charging and melting
- b. Refining and finishing
- c. Deoxidation and alloying
- d. Slag control, etc.

Fourth-orders, giving even finer subdivisions, can be introduced by users and are shown with numerals 30 to 45.

2. Next are enumerated *materials*. These are shown, most simply, as chemical symbols, e.g. iron Fe; cobalt Co, etc. The major element in an alloy is shown in roman type; a minor or alloying constituent is shown in italics (underlined in typewriting or handwriting).

Further groupings are available of particular use to metallurgists:

ST	steel (in general references, e.g. 'rimming steel' ST–d; 'electric steel' ST–f)
CN	carbon steel
AY	low-alloy steel
SS	high-alloy, stainless, heat-resisting steels.

These are all appropriately subdivided.

Two further useful lists are materials by properties and applications, e.g.:

SGA–g	corrosion resisting
SGA–h	heat resisting
SGA–j	tool and forming materials, etc.

This will code such reference as a 'corrosion-resistant nickel alloy', which would be Ni, SGA–g.

The materials schedules also accommodate non-metallic materials of importance in metallurgical processing:

Section RM (Industrial raw materials) covers, e.g. industrial gases, refractories, and fuels.

Section AD (Addition agents) covers, e.g. alloying agents, deoxidizers, desulphurizers.

Section NM (Non-metallic materials) covers, e.g. organic compounds, ceramic materials, lubricants.

3. Having established processes, properties, and materials, a *common variables* schedule allows a brevity of entry by avoiding the repetition of subdivisions in other schedules.

It covers such manufacturing concepts as: 'continuous process', 'cyclic process', 'high-temperature working', 'ultrasonic method'; influencing factors, such as 'effect of ageing', 'effect of stress'; form of finished product, such as 'bars and rods', 'sand castings', 'briquettes', 'welded structure', 'electroplated'. It is also a useful designation for such things as the form of literature ('patent', 'translation', 'glossary'), and the language.

4. *Uniform method of writing the codes.* The codes should be written in the standard order and punctuated as follows:

> Process and Properties (and Products and Equipment) followed by Common Variables referring to them, separated by commas,
> e.g. M21e, N7a, 4–56
>
> Follow with a semi-colon and continue with Materials and Common Variables, separated by commas,
> e.g. ST, 5–60, 18–72
>
> (Under Materials, base or major materials appear in roman type; minor or alloying constituents appear in italic or are underlined.)

5. Examples (coding of some BISRA reports)

a. 'Slag-liquidus temperature tables' = A14g; RM–q, 2–61

A14g = charts, graphs, tables
RM–q = fluxes and slags
2–61 = effect of temperature

b. 'Open-hearth furnace waste-gas sampling' = A8a, S12h, W18r

A8a = dusts, gases, and fumes
S12h = sampling techniques
W18r = open-hearth furnaces

c. 'Heat transfer investigations and the development of the automatic control of power-input on the BISRA 10-cwt. arc-furnace' = P11k, W18s, X10c, 1–52.

P11k = heat transfer
W18s = electric arc-furnaces
X10c = watt-meters and watt-hour meters ('interpretation' for power-input)
1–52 = use of production equipment

d. 'Metallurgical examination of oxygen-cut titanium' = G22g; Ti, 4–53

G22g = flame cutting
Ti = titanium
4–53 = sheet, strip, and plate

e. 'Variation in fatigue properties over individual casts of steel—investigation of a cast of steel to B.S. 970 specification En 24' = Q7; AY–*Ni*, *Cr*, *Mo*, 5–59

Q7 = fatigue properties and tests
AY = low-alloy steel
Ni, *Cr*, *Mo* = nickel, chromium, molybdenum alloying elements
5–59 = ingots.

APPENDIX 2

SOME CRITICISMS OF ASM

For anyone contemplating introducing ASM to classify documents, some of the criticisms which have been levelled against it should obviously be borne in mind. It is suggested that the foregoing paper will have underlined its advantages of up-to-dateness, reasonable comprehensiveness, particular application to metallurgy, and ease of manipulation by relatively non-technical staff.

Some of its less attractive features might be mentioned:

Complexity of some codings. Slag control in open-hearth steelmaking is coded as D2d, but the more complicated idea of slag-metal reactions in open-hearth steelmaking needs two codes from the 'Processes and Properties' schedule, viz. D2, D11n (corresponding to the UDC colon: Open-hearth practice (D2); Slag-metal reactions (D11n)). To further define *basic* open-hearth steelmaking, a Common Variable (1–65 Basic method) has to be added: D2, D11n, 1–65.

Separation of codings. A distinction is made in the 'Processes and Properties' schedule between the processes themselves and the equipment for carrying them out, and this leads to related documents being separated when coded. For example, D2a covers charging and melting in open-hearth practice, whereas open-hearth furnaces are coded W18r. (This criticism might also apply to UDC in some cases.)

Omission of codings. Coding tends to have gaps, more especially in non-metallurgical subjects; for example, although 'space-craft' has a number 'biography' has not. In cases where metallurgy schedules are simply part of a comprehensive classification (e.g. in UDC), notations are available for all other facets of human knowledge and the objection that ASM has made a selection judged to be of prime interest to the metallurgist does not arise.

Arbitrary order of filing. Documents bearing multiple coding are not very amenable to alphabetical filing. A card coded D2, D11n would be filed under D2 and to find the 'coloned' D11n, it would presumably be placed following any with D2, D10, which in turn would be placed after D2, D9, and so on. Addition of Common Variable numbers would further complicate filing order, and if Materials codes appear in the reference (e.g. D2, 9–51; ST, NM–a34) the complexity would be considerable. Multiple recording, with each component of the code on a separate card is the only obvious solution, if punched-card techniques are not used.

Arbitrary codings in general. One of the primary aims of a classification is that like and related subjects are brought together; in practice this means, say, some kind of logical progression when classified cards are filed in a box. Depending on the skill with which the classification was constructed one moves from broad to particular ideas when examining cards in sequence and the transitions are not too abrupt. ASM gives less of this feeling of smooth transition: its spirit is more of an *index* than a classification. In Processes and Properties there is a fair progression down to second order; below this the deliberate scattering of third-order letter codes (introduced to facilitate punched-card operation) causes an arbitrary order if cards are alphabetically filed.

For example, in 'S' (Inspection and Control), the second orders run S10, Sorting and identification; S11, Composition analysis; S12, statistical analysis and control; S13, Flaw detection, and so on. But taking S11, Composition analysis: third orders are S11j, volumetric; S11k, optical spectrographic; S11m, polarographic, etc., down to S11s, fire assaying. The sequence then reverts to S11a, colorimetric, S11b, gravimetric, etc., finishing with S11g, other methods. If these were placed alphabetically by third order, this would lead to an arbitrary sequence with 'other methods' appearing at 'g' in the middle.

Multiple sequences in filing cards. There are three sequences in filing cards: *a.* processes and properties; *b.* materials; *c.* common variables. The user might not instantly know, for example, that 'RM' will be found under 'materials' and not as a subdivision of 'R' in the 'processes and properties' sequence.

For a detailed discussion of the problems of classifying metallurgical literature, *see* E. Öhman and J.P. Saville: 'The Universal Decimal Classification applied to Metallurgical Literature'. *Journal of the Iron and Steel Institute*, 1954, vol. 177, May, pp. 183–8.

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The price of SPECIAL LIBRARIES ASSOCIATION. Guide to metallurgical literature. (SLA Bibliography no.3) is $4. This publication is not issued gratis as stated in p.219 of our August issue.

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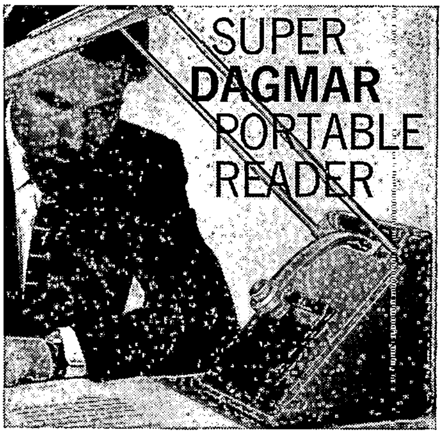

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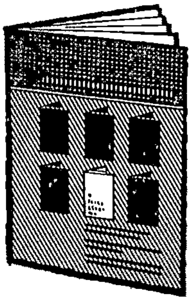

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ASLIB PROCEEDINGS

incorporating Aslib Information

Volume 13 November 1961 Number 11

ASLIB CALENDAR

1961

November

WED.22. Aeronautical Group winter meeting in London.
Economics Group visit to Institute of Practitioners in Advertising.

December

WED.6. Fuel and Power Group meeting at Aslib.
Film Production Librarians Group visit to Pinewood Studios.
THUR.7. Economics Group visit to University of London library.
WED.13. Sherry party at Aslib.

1962

January

TUE.9.–THUR.11. Aeronautical Group documentation course.
WED.10. Economics Group visit to Westminster Abbey library.
WED.17. Economics Group visit to Patent Office library.
WED.24. Economics Group meeting at Aslib.

February

THUR.1. Economics Group visit to Royal Society of Arts library.
TUE.6. Fuel and Power Group visit to Castrol Ltd.
WED.14. Economics Group visit to Richard Thomas & Baldwins library.
WED.28. Economics Group visit to Aslib.

March

TUE.20. Fuel and Power Group 'Hobby-horse' evening.

May

TUE.15. Fuel and Power Group Annual General Meeting.

Sherry Party

Following a meeting of Aslib Council on Wednesday 13th December, a sherry party will be held in the Council Room for the purpose of giving members an opportunity to meet the Council. Members wishing to attend must let Aslib know in advance. A charge of *7s 6d* per person will be made.

Scottish Branch

Some fifty students attended the first course in information work organized by the Branch, in September; they included a Director of Documentation (Mrs Vilentchuk, from Israel), scientific and laboratory assistants, technical clerks, and a publicity officer. Visits to the National Engineering Laboratory at East Kilbride, to the Institute of Engineers and Shipbuilders in Scotland, the Commercial Library, and the library of the Royal College of Science and Technology in Glasgow were included in the programme. The students agreed that they had benefited from the course and suggested that the next one should be residential.

Twenty members of the Branch visited the Scottish Police College at Tulliallan Castle on 4th October. The Librarian, Miss Sommerville, showed them the College reference library and the Commandant took them for a tour of the College.

The Branch plans to hold a residential annual conference in February or March 1962 on 'writing, publishing, printing, binding, and storage'.

Mr W. H. Rutherford, Assistant Secretary and Librarian of the Royal Society of Edinburgh, who is a personal member of the Branch, has been welcomed to the Committee.

Aeronautical Group

A short course on documentation in the aeronautical and guided weapons fields has been arranged for 9th to 11th January 1962 at the College of Aeronautics, Cranfield. It is intended for new assistants and junior members of libraries covering these subject fields and will include papers on sources of published and unpublished literature, indexing and abstracting services, and the handling of reports literature. Notices are being sent out to members of the group. Anyone else who is interested should contact the Group Secretary, Miss M. Dyke, Librarian, Royal Aircraft Establishment, Bedford.

Fuel and Power Group

On 3rd October some twenty members attended a talk on *Fuel Abstracts and Current Titles* given by Miss Martin of the Institute of Fuel. Miss Martin started by outlining the history of the publication and went on to describe some of the problems involved in its preparation and compilation. She requested members of the group who could offer suggestions for improvement or additional material to let her know. A lively discussion ensued.

On 25th October members of both Fuel and Power and Engineering groups visited the DSIR Building Research Station at Watford.

Further Fuel and Power Group meetings have been arranged for 6th December 1961, and 6th February, 20th March, and 15th May, 1962, as shown in 'Aslib Calendar' on page 295.

Society of Indexers meeting

The Society of Indexers will hold a meeting at 5.30 for 6 p.m. on Tuesday 12th December at the Library Association, Chaucer House, Malet Place, London WC1. Mr Richard Bancroft, M.A., Superintendent of the British Museum Reading Room, will speak on the British Museum subject index. Discussion will follow. Members of Aslib will be welcome.

Course on handling Special Materials in the Library

The Department of Librarianship, North-Western Polytechnic, has arranged a series of fourteen lectures on the problems of handling special materials in the library. The lectures will be given at seven sessions (four at Aslib and three at Chaucer House) on Wednesday afternoons, at fortnightly intervals commencing 17th January 1962, by speakers from many kinds of library. Prospectuses for this course are available from the Head of the Department of Librarianship, North-Western Polytechnic, Prince of Wales Road, Kentish Town, London NW5.

French Technical Translation Course

An evening course in French technical translation is included in the programme of the Holborn College of Law, Languages, and Commerce. It is intended to impart the fundamental principles of technical translation, to develop facility in translation of French technical, patent, and scientific literature, and to prepare candidates for the examination for the Diploma in Technical Translation of the Institute of Linguists. A good knowledge of French is assumed at the outset but general points in grammar are dealt with. Texts to be studied deal mainly with the physical and mathematical sciences in their pure and applied forms and the basic features of good technical translation are explained with reference to this material. The relevant basic vocabularies are dealt with and the use of dictionaries, glossaries, and standards of terminology. Classes are held on Wednesdays from 6.15 to 8.15 p.m. and the fee for the course is 30*s*.

There are a few vacancies also in the courses on Chinese for Scientists at the College.

Further particulars may be obtained from the Department of Modern Languages, Holborn College of Law, Languages, and Commerce, Red Lion Square, London WC1; telephone Holborn 2889.

New *TPI List*

The Hafner Publishing Company has recently issued the first international *T.P.I. List*. It is based on the *British T.P.I. List* and *French T.P.I. List* published respectively in 1950 and 1952. The new list gives information on the availability of title pages and indexes of more than 2,000 periodicals published in Great Britain, France, Belgium, Italy, Spain, the Netherlands, and Scandinavia, stating when and in what form they are issued. *T.P.I. List* is published by the Hafner Publishing Co., Star Yard, Carey Street, London WC2, and 31 East 10th Street, New York 21, NY, USA, price, respectively, 2 guineas and $6.50.

Hobart Papers

The Institute of Economic Affairs has taken over from Barrie and Rockcliffe publication and distribution of the *Hobart Papers*, which will now be available on annual subscription, as well as by individual titles through booksellers. The *Hobart Papers* are short studies, mostly by economists, publication of which is intended 'to contribute a stream of authoritative, objective, and readable commentary to the shaping of economic opinion and policy'. So far fifteen titles have been published; the most recent being an economic critique of the National Health Service, entitled *Health through choice*. The first five papers have been published in book form by Hutchinson for the Institute, under the title *Radical reaction*, price 25*s*.

The annual subscription, covering six consecutive numbers of *Hobart Papers*, is 30*s*, or 20*s* to buyers of *Radical reaction*. Subscriptions orders may be sent direct to the Institute of Economic Affairs, Eaton House, 66A Eaton Square, London SW1.

International Insurance Dictionary

The Board of Trade Library has a limited number of the *International insurance dictionary* now available for sale. This volume is a 1,083-page multilingual dictionary of some 1,800–2,000 terms relating to insurance, in eleven European languages. Definitions or explanations of more than 400 terms are included as are sections dealing with actuarial symbols and abbreviations in international use. The dictionary was published in 1959 by the European Conference of Insurance Supervisory Services and distributed initially to organizations which had placed advance orders. *International insurance dictionary* is obtainable from the Board of Trade Library, Horse Guards Avenue, London SW1, price 96*s* 6*d*, plus 3*s* postage.

O & M Documentation Service

A new documentation service for organization and methods in industry and commerce is announced by Anbar Publications. The subjects covered include office management, clerical work study, office methods, office equipment, and business application of data processing. The new service, to be known as Anbar Documentation Service, will publish monthly abstracts from some seventy-five journals, both British and foreign; a bi-monthly cumulative index of techniques, equipment, and applications; a quarterly bibliography of books, pamphlets, and films, with review references; and three sets yearly of 'direct tracer cards' indexing up to 880 articles, cross-referenced. Copy and translation services also will be available to subscribers requiring the full text of any references. The annual subscription to Anbar Documentation Service is 25 guineas, from Anbar Publications Ltd, 34 The Mall, Ealing, London W5.

Serials for African Studies

The Library of Congress has recently published a new bibliography of more than 2,000 titles of periodicals concerned with Africa. The titles listed cover institutional serials—journals, annual reports, memoirs—and independent magazines published in Africa and abroad. The new list is based on *Research and information on Africa: continuing sources*, published by the Library in 1954, but it includes also a variety of ephemeral publications in western and African languages, newsletters and bulletins, and missionary journals and magazines. The entries include information on holdings in the Library of Congress and other American libraries, addresses of publishers not readily available elsewhere, and in some cases notes describing contents. A general index and an index to organizations are included. *Serials for African studies* is available from the Superintendent of Documents, Government Printing Office, Washington 25, DC, USA, price $1.

INFORMATION WORK IN CERAMICS:
the Science and Technology Section

A. E. DODD

British Ceramic Research Association

Northern and Midland Branches Joint Conference, Keele, 23rd July 1961

TO begin this paper provocatively I will put forward the opinion that information work in any field is always largely empirical; information work in a technology cannot be anything else but empirical. It is impossible to organize an information service for a technology until the broad outline of the technology itself has been understood and assimilated. This being so, it is only possible to speak to any purpose on information work in a technology if, at each stage, some specific technology is used as a framework of reference; the only such framework known to the present author is that provided by the ceramic industry. It has been objected that the ceramic industry cannot provide a broad enough framework to give interest to an audience drawn from other industries; I hope to be able to show that this objection is not valid. To do so, the term 'ceramics' must first be defined.

SCOPE OF THE CERAMIC INDUSTRY

All ceramics were originally made from clay. Clay occurs abundantly on the earth's surface. Its prime property of plasticity is obvious; so too is the potential value of this property, affording a simple means of shaping useful articles. The drying of clay to form a hard mass is a natural phenomenon that can be observed on the surface of the earth almost anywhere at any time. The shaping and drying of clayware thus became one of man's earliest crafts. It was not long before it was found that clay hardens still further, and becomes fully durable, if it is fired. When this stage was reached, probably as early as 4000 B.C., the basic process of the ceramic industry was complete: shaping at normal temperature, drying and firing. In the May issue of the *Transactions of the German Ceramic Society,* this year, there was a solemn article entitled 'Some Secrets about Clay'; it carried an abstract in English which we thought rather unconsciously amusing: 'Our forefathers believed that God created man by first forming him out of clay—this high appraisal of clay is based on its plasticity in the moist state and on the rigidity of the moulded body after drying and firing.'

The three main branches of the ceramic industry—domestic ware, building materials and refractories—had become established shortly after the beginning of metal-working in the Bronze Age. The next major step was the firing of a glaze on porous clayware. From then until the introduction of porcelain, by blending felspathic fluxes with clay, no major development occurred; the use of calcined bone in pottery bodies began, in Stoke-on-Trent, in about 1790.

Domestic Ware	*Building Material*	*Refractories*	*Electro-Ceramics*	*Abrasives*	*Special*
Tableware { Earthenware Bone china	Bricks	Fireclay	Porcelain	Silicon carbide	Chemical stoneware
Porcelain	Pipes	Silica	Steatite	Corundum	Alumina
Sanitary ware	Roofing tiles	Sillimanite	Cordierite	Tungsten carbide	Magnesia
Wall tiles	Floor quarries	High alumina	Wollastonite		Beryllia
Floor tiles		Magnesite	Rutile		Thoria
Artware		Chrome-magnesite	Titanates		Zirconia
		Dolomite	Stannates		Boron nitride
		Forsterite	Niobates		Silicon nitride
		Zircon			Cermets
		Carbon			Devitrified Glass
		Silicon carbide			

TABLE I. *Range of Ceramic Products*

It will be seen that by this time ceramic bodies were being made in which clay formed only a proportion—about half—of the composition. From the earliest times it was known that clay is refractory and that it could be used for moulding containers for the melting of glass and metals. Refractories were an obvious part of the ceramic industry. In 1822 an entirely new type of refractory was made to meet the more stringent demands of the metal industry; it consisted of a pure silica rock bonded with a small amount of lime. Here was the first ceramic product that contained no clay at all. Since then, other types of refractory free from clay have been introduced, and, more recently, a variety of electroceramics and high-temperature engineering units—none of them containing clay. It seems to have been accepted without much question that all these are ceramic products. They are thus classified because they are made by the basic ceramic process—shaping at normal temperature followed by a hardening process at a high temperature. Some indication of the range of modern ceramic products is given in Table 1.

ORGANIZING AN INFORMATION SERVICE

An information service intended to meet the needs of a technology must look beyond the technology to the industry concerned; a technology exists only by virtue of the related industry; an industry progresses only in so far as its technology progresses. It is my experience, and I believe the experience of all information officers serving an industry, that the definition of the work is very simple: to provide information on any topic related to the industry. As you will all know, by simple extension this means information on any topic under the sun!

However, excluding for the moment those personal queries from managing directors that must be answered at all costs (our most recent was how to heat a swimming pool by the sun's rays!), it is probable that an information service aimed to meet the normal technological needs of an industry could be built around the following scheme:

Raw materials
Manufacturing processes
Testing procedures
Properties of products
Behaviour of products in service

In addition, it is inevitable and essential to include those sections of the pure sciences—chemistry, physics and mathematics—that have relevance. Moreover, it will soon be realized that to deal with the process items listed above, attention must be paid to trade literature; this will be considered as a separate problem by my colleague Mr Raines.*

COLLECTING INFORMATION

All technologies are now served—well or badly—by technical societies and by the trade press. For example, the major producing countries of ceramics have their own ceramic societies and issue monthly journals. The British Ceramic Society was formed in 1900 and its *Transactions* contain about thirty-six to forty papers a year; the American Ceramic Society began in 1899. Societies of this type are evidently the backbone of an industry's technology. An information centre will automatically subscribe to all relevant societies or institutions of this type. In addition, most industries have their trade journals—often of high quality and an essential supplement to the journals of scientific societies.

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*See pp. 309–15

Problems arise in deciding which periodicals should be purchased outside the immediate field of interest. For raw materials we need geological and mineralogical journals; then, surprisingly perhaps, we need journals of soil science because much of the research on clay minerals is done by soil scientists. The manufacturing process of an industry will demand some coverage of the various branches of engineering; *Engineers' Digest* is very useful. We also subscribe to *Engineering, Machinery, Industrial and Engineering Chemistry,* and *Mechanical Handling.* Most industries use fuel; in the manufacture of ceramics, fuel represents an important part of the cost of the product and we receive several fuel journals in the library.

Testing procedures can be divided into methods of chemical analysis and techniques for physical testing. The ceramic industry has for some years been keenly interested in more rapid methods of chemical analysis and at the Research Association we have a small team of analysts concerned solely with the evaluation of such methods and their adaptation to the special needs of our own industry. Chemical and physical methods of analysis multiply at an alarming rate; to keep check of them we receive in the library *Analyst, Analytical Chemistry, Analytica Chemica Acta, Talanta, Spectrochemica Acta, Applied Spectrosocopy* and *Analytical Abstracts.* This may seem excessive but items of definite interest appear in each journal. For physical techniques we rely on the *Journal of Scientific Instruments* and *Review of Scientific Instruments*; the publications of the American Society for Testing Materials are also of great value. We have close contact with the British Standards Institution in the development of standard testing procedures for ceramic products.

Information on the properties of an industry's products is largely confined to the literature specific to that industry, but for information on the last of the divisions suggested—Behaviour in Service—one may need to seek in unlikely places. Ceramics find use in the home, in all manner of buildings from breweries to hospitals, and in most industries. Important papers get published in journals which will probably never contain another article of interest for ten years; one's only hope of spotting these is through abstracting journals. In our own case we scan *Chemical Abstracts, Building Science Abstracts, Metallurgical Abstracts, Nuclear Science Abstracts, Physics Abstracts, British Patent Abstracts* and the *Official Gazette of U.S. Patents.*

Then, of course, there are books. I do not know whether it is true of other industries today, but the most useful books on ceramic technology are the proceedings of conferences and symposia. The day of the classic by an outstanding figure in the particular technological field has almost gone; we have in its place the book—no doubt unbalanced—in which each chapter is by a different, highly expert, author.

Finally, there is unpublished information. What I have in mind here is the item of information received by word of mouth or contained in a letter; this is often confidential but should nevertheless be noted before it is forgotten or lost.

The procedure we adopt at the British Ceramics Research Association is to put information of this sort on a different coloured card in the central card index; we use red cards to warn us that the information is confidential.

INDEXING INFORMATION

I began by expressing the opinion that information work in a technology is empirical. I hold this view also of indexing systems. First know your industry then cast around for an indexing system into which it will fit—not Procrustean fashion but in the time-honoured method of making children's clothes . . . 'to allow'. A system must be flexible; no one knows what new topic may leap into prominence in the next year or two. Obviously, if an existing system looks adequate one should use it. Had I been in charge of an information service for, say, the electrical industry, I should doubtless be using the UDC, but the UDC deals very shabbily with ceramics and I had to invent a system of my own. It is quite simple, proceeding in the usual way from the general to the particular. For reasons of economy it combines, to the limited extent that this is possible, subject and author indexes. The coding is based on letters having some relevance to the key word concerned. Let us take some examples:

RP/	Refractories; properties
RP/A	,, ,, ; Alumina
RP/A/TEX	,, ,, ,, ; Thermal expansion
B/	Building material
B/PI	,, ,, ; pipes
B/PI/J	,, ,, ,, ; joints

Obviously, such a system can be carried in one's head. Perhaps it is even more important that if there is a slip in typing it is highly unlikely that the card bearing the wrong set of letters will find any place in the index cabinet; for example, if RP/A/TEX had been typed RQ/A/TEX or RP/A/TEY it could not be filed. A system of numbers such as the UDC has no such safeguard.

However, technology is becoming international; ceramic technology has already moved into the Common Market and the ceramic societies of France, Germany and Britain interchange abstracts and have evolved a new indexing classification for ceramics. They would have none of the British Ceramic Research Association system for the very good reason that while RP/A/TEX says quite plainly to an Englishman 'Refractories, properties; Alumina; Thermal expansion', it says nothing of the sort to a Frenchman or a German. The European Ceramic Association has in consequence set up its own classification: DEC—Documentation Européenne de Céramique.

CIRCULATING INFORMATION

Most technologies now have their journal of abstracts; Iron and Steel, Fuel, Building, to name but a few. *British Ceramic Abstracts* have now been issued for over fifty years; they are prepared by the BCRA and printed in the *Transactions of the British Ceramic Society*. They are also printed separately for issue to members of the Research Association. It is now almost standard practice to insert reply cards in abstracting journals—at least in those issued by Research

Associations—so that readers can request copies of the original articles. Many of the articles are, of course, in foreign languages so that a translation service is also necessary.

ANSWERING INQUIRIES

In a technology, that is, science applied to industry—it is only when specific questions are being answered that an information service can feel that it is doing a worth-while job. It is possible to collect abstracts and file them on cards in the same spirit of acquisitiveness in which some people collect stamps—but stamps increase in value with agê, whereas most abstracts steadily become worthless. The true purpose of a stamp is to give passage round the world to news; this, too, is the true purpose of an abstract. Let us see how this works in the particular case of the information service for the ceramic industry. We will take some examples following the same scheme outlined earlier.

Raw materials

Perhaps the best example of the usefulness of this section of our Card Index System was provided by the member firm that sent its chief technologist to the Information Department to find out where, within the Commonwealth, a new pottery could best be sited in so far as an adequate supply of raw materials was concerned. This required a survey of Commonwealth resources of china clay, ball clay (or equivalent plastic clay), a source of pure silica, and a flux (felspar, or nepheline syenite). The appropriate sections of the card index were put at the member's disposal and he was able to make a fairly comprehensive preliminary survey. Obviously, he would need to go much more deeply into the subject before his firm made a final decision; he would ultimately approach the Geological Survey Department or the Mines Department of the Commonwealth country that he had selected as being the most promising.

'Raw materials' can be an elastic term. The principal raw material of ceramics is clay; the principal mineral constituent of clay is kaolinite. It would seem logical, then, to include information on the properties of pure kaolinite in the same section of the card index as clay—namely, Raw Materials. If the mineral kaolinite is heated strongly it loses water and eventually recrystallizes as a different mineral—mullite. Scores of papers have been written on this mineral mullite; it is not a raw material, but it would again seem logical to index papers on mullite under Raw Materials. For the sake of appearances, this part of the index now becomes 'Raw Materials and Minerals'. Quite a lot of inquiries are answered by reference to cards under this extended heading:

How do we make cristobalite?
What is pyrophyllite and what are its properties?
What is the thermal expansion of carnegieite?

Manufacturing processes

A good proportion of the questions received relating to the manufacturing process involve 'know-how'; this is the sort of information that is commonly lacking because all the scientific and technological journals are concerned with what is new and the trade journals, although they often describe factories, send their reporters at times when everything is working smoothly and 'know-how' is not in evidence. Here, of course, is where the Information Department does some liaison with the Liaison Department or with some other member of the staff who *knows*—information officers are only expected to know where to get answers. The types of inquiry that I have in mind are those from manufacturers who are thinking of extending their range of products and want all the production details handed to them on a plate; or trouble-shooting amongst their present range of products.

For example: Please send us details of batch compositions for making steatite electrical porcelain that will mature at 1250°C. Doubtless, among our 200–300 cards on steatite porcelains some will refer to articles or patents containing batch compositions and their maturing temperatures. We will provide a memorandum setting out all these, but we shall point out what the inquirer surely already knows, that a composition referring to so much china clay, so much steatite, etc., without specifying the grade and supplier of the china clay or the steatite, will merely give some indication of the composition that he should experiment with. The information officer has provided basic guidance; in his covering letter he will suggest that, having considered this preliminary survey, the inquirer should come over for a discussion with the man on the staff who can help to translate these indications into practical terms.

But there are a lot of manufacturing questions that an information officer can answer quite positively. Members of an industry are always asking for information on their competitors' latest patents. Of course, very large firms employ people who do nothing else but watch other firms' patents and draft patents for their own firm. The ceramic industry has few firms of this size; the central Information Service must do this job for the industry as a whole. This sometimes involves searches to assist in the opposition of a patent; in fact this occurs sufficiently frequently to warrant the keeping of all references however old they may be. To save time in searching the card index for the recent information that is more usually required, we have started to use red tape—the sort used by solicitors. When any section within the card index gets too big, if it cannot conveniently be subdivided all cards referring to articles and papers pre-1940 are tied with red tape and put at the back of their section. If you haven't thought of this one, it is the best use of red tape that I know!

Then there are the scientific data required from time to time in controlling or developing a manufacturing process. Here is a simple one: In calculating the efficiency of a kiln that is firing clayware you obviously need to know the theoretical heat requirement for completing those chemical processes that occur in clay during firing. What, in fact, is the overall specific heat of clay? Now, if you are dealing with a technology based on a raw material such as clay, it will be a good idea to have a section of your card index devoted to properties of that material *as a material*. The Raw Material and Minerals section deals primarily with where it comes from; this other section is concerned with all the detailed research on the physics and chemistry of the material itself—in the technology of ceramics, the physics and chemistry of clay, its mechanical, thermal and electrical properties, its behaviour under conditions involving chemical change. And so, in this section, we find data for our member who needs the overall specific heat of clay to calculate the efficiency of his kiln.

Testing procedures

To answer inquiries on testing procedures is usually straightforward. The procedures that people are interested in are, for the most part, those that have been standardized. By perusal of the monthly list issued by BSI we endeavour to obtain copies of all specifications, British and foreign, relating to our industry. For procedures used outside our industry we rely on the complete set of British Standards held by our City Reference Library and our own set of ASTM standards.

Properties of products

This again is straightforward. A section in the card index for each type of product, and each of these sections subdivided into the usual physical and chemical properties. This provides quick answers to such questions as:

What is the thermal conductivity of a Staffordshire blue engineering brick?
What is the crushing strength of bone china?

This last question once reached us, as a result of a typist's imagination, as 'What is the crashing strength of bone china?'

Behaviour of the industry's products in use

Most, if not all, information services for a technology must follow their particular product through to its final use. For ceramics we have special sections of the card index devoted to the behaviour of pottery in use, the effect of frost on roofing tiles, how refractories stand up to the conditions in a blast-furnace. There is a vast literature on such subjects. But outside these normal fields we get some interesting problems. To solve them we often have to seek the aid of other Research Associations or of friends in appropriate places.

For example: What are the acids present in grapefruit juice, pineapple juice and tomato juice, and what is their pH? This is no catch question; neither was it asked frivolously. A lot of research has been done on the durability of the decoration on pottery; the member wanting this data on fruit juices wished to set up a simulative laboratory test for the durability of the decoration on his ware. The answer reached him quite quickly—we merely had to telephone the Fruit and Vegetable Canning R.A. at Chipping Campden.

The questions that we get asked that come under this heading of Behaviour in Service reflect the very wide field of application that ceramics now have:

What is the effect of surface roughness on the flow of water through pipes?
What information is available on exothermic hot-tops for casting steel?
Have you anything on the use of sillimanite for the filtering of molten aluminium?
What chemicals are likely to come into contact with the floor of a tannery?
What is known of the use of ceramics in brake-linings?
What specification is there for anti-static floor tiles in operating theatres?

This list could go on for a long time. Its only purpose is to show that the information worker in a technology must cast his net pretty wide—and must know where to go for help when his net comes up empty.

some of the information sought could be obtained by the individual inquirer from other sources. Its value lies in the fact that it is a compact, comprehensive, convenient, and rapid source of information. It is, in fact, a service that collectively saves inquirers some many thousands of hours a year. When balanced against the cost of an information service, that represents not only much money and effort saved, but quicker progress in both research and industry.

How does it operate? To be precise one could say that relevant material is collected, classified, card indexed, and the material filed. When an inquiry is received, reference is made to the card index that states which file is to be consulted. As simple as that, but let us examine more closely the *modus operandi.*

If we are to impart information, we must collect it first, and that is done in numerous ways. One of the main sources is the collection of catalogues issued by manufacturers, wholesalers, and various sales organizations, and these are obtained mainly by request. The collection of these is simple, but the selection offers some problems. It is not a question of how many shall be kept, but which to keep. After all, storage room is generally limited, so also is the time necessary for classification. Inquiries on products cover a very wide range, so that some foresight in selection is important. Obviously it is simple enough to know what is of direct interest to a particular industry, and some of what is of only indirect interest. It is the selection of those catalogues which *may be* of use eventually that needs this foresight. There is no guide, it is a matter of imagination, experience and judgment. Another problem allied to selection is that of quantity. Storage space available and other limitations will determine the overall quantity of material which can be held, but this determination must enforce what one may call a selection-cum-quantity pattern. As an example: laboratory furnaces are constantly asked for and are required in all shapes, sizes and temperature limits, in each gas, electric or oil firing, so that maximum coverage is required. Brickmaking machines are constantly inquired for, and here again a full selection of catalogues is obviously necessary. On the other hand, such items as sheet mica are seldom required so that details of one or two firms' products is sufficient. In other words, cover products as widely as possible but keep a balance on quantity. If a particular thing or things come into prominence, such as items required in consequence of the growth of physical methods of chemical analysis, items such as the flame photometer, or the spectrograph, then trade information on these can be built up, or expanded.

There is one other point which seems to be opportune at this stage, and that is the matter of keeping the collection of catalogues up to date. While it would be desirable to hold at all times the current issue of all catalogues, this is not possible unless sufficient staff is available to handle the work involved, and experience shows that the cost of staff for the purpose would be unbalanced against such benefits it would bring. It must be remembered that a large number of products do not change radically quite so quickly as is sometimes imagined. It would seem fair to say that if a complete revision takes place progressively over say every five years that the collection of trade literature is reasonably up to date. By progressively I mean, starting revision of the files at A and working steadily through to Z, the whole operation taking five years. On completion, one then would immediately recommence at A. It must be remembered too, that revision is not just a matter of taking out an old catalogue and putting in a new one. Each replacement must be checked for new items, which need classification, also for any items which have been discarded and necessitate an adjustment to the card index accordingly.

So much for the collection of catalogues, but there are other ways of collecting material. One of some importance is that of visits to the various exhibitions. These exhibitions are not only the shop windows of particular industries, but they serve a most useful purpose in so far as development is concerned. After all, a Trade Information Officer is more than one who just imparts stored information to others, a quite measurable part of his duties is in keeping interested people in touch with developments and advising, or perhaps I should say, suggesting, possible applications. Another means of collecting is by circularizing certain sections. For instance, some years ago I felt there was not sufficient coverage on raw materials. A search was made therefore of various directories, journals and other trade literature and a list of possible suppliers was compiled. Eventually a circular letter was sent to each firm, some seventy in all, requesting details of all materials they handled, together with analyses where possible, country of origin, prices, and delivery conditions. Nearly all firms replied, most of whom had something to offer which was of direct interest to the industry. The result was a most useful and sizeable addition to our sources of supply, or to put it into figures, about an 80 per cent positive result. Opportunity should always be taken when an inquiry is received for something of which no details are held and at least some coverage established. The visits of travellers is another opportunity for collecting material.

But catalogues alone are by no means sufficient to meet inquiries and it is necessary to have other aids. Among these, directories are undoubtedly the most important, but these should be used with some reserve. It is not by any means unknown for a firm shown as making a particular product to state, when approached, that they do not in fact make such an article. On the whole, however, they do perform a valuable function. One directory, or set of directories, that I feel is essential, and I say this quite categorically, is the complete set of British Telephone Directories. They are cheap, just over £5 for the twenty volumes, but they give contact with almost anybody anywhere. Apart from their original intended use they serve many other useful purposes, such as finding and checking addresses, checking firm's titles and sometimes the nature of a firm's business, supplying correct postal addresses, and locating unimportant or obscure places. What is more, they are so reliable, seldom does one find an inaccuracy. Normally they are published every twelve months, except for London and Outer London, which is every fifteen months.

Trade directories are also very necessary, but the range of such directories held will depend upon individual needs. Strange it may seem, but as yet there is no complete directory covering the British ceramic industry; not that we need one as we already have the information in our files. Should one ever see the light of day, however, it would be of no small size. As a matter of interest it is worthy of note that the directories most used in my Association are, in order, telephone directories, Rylands (Iron and Steel trades), Electrical Trades, Plastics, Chemicals, Instruments, and Glass. Also, in building up a reference section it has been found most useful occasionally to visit some of the larger public reference libraries and browse through their published directories.

Another aid in amassing material is the collection of lists of manufacturers or suppliers which are sometimes published in journals, or lists which are held privately by some person or body. Then personal contact with trade or other friends can often secure useful information which can be recorded. Search of the trade journals is obviously a good means of getting information and this should be carried out systematically and regularly. One paper we scan daily, and from which we get at times some valuable leads, is the *Financial Times*.

Collection of information is not in itself sufficient. It has to be made readily available, and in consequence needs to be classified. This classification refers mainly, of course, to catalogues and other trade literature. A simple card index system, well cross-referenced, serves admirably. In the system used at the British Ceramic Research Association all catalogues and other trade publications are examined, and each kind of product is noted. Now the card index is composed essentially of the names of products and therefore the card relating to the product noted has added to it the name of the manufacturer. And so is compiled a list of manufacturers of any particular product.

In general it is desirable to have one card for each individual product. For instance: a card headed Conveyors would not be practicable as there are so many different kinds, so that such products should be shown individually under headings such as Conveyors: Apron; Conveyors: Belt; Conveyors: Bucket; Conveyors: Chain; and so on. Into such an index can be built much other information, such as lists of consultants, or journals. Another, and most useful purpose of the card index of products is that of making certain data easily and quickly available. Quite often data and/or specifications are given in catalogues, and a brief note of these against the supplier's name on the product card is sometimes invaluable. Sometimes it is necessary to add simply after the name—'Data in catalogues'. An instance of this is shown on the card for laboratory kilns. An inquiry may stipulate that these kilns are required to fire up to 1500°C. On turning up the card one easily sees from these notes those makers who can provide these high-temperature kilns. It can save much searching through catalogues. It is useful to know the country of each manufacturer, and this can be indicated against each entry—or perhaps better—use different coloured cards to denote broadly the location—such as white for British, blue for American, and pink for European.

Another valuable index which can be built up is an alphabetical index of trade names. Cards in this index include the trade name, what the goods are, the maker's name and address, and any other details necessary. Many inquiries are received of the nature: What is LISSAPOL, and who makes it? Reference to the appropriate card gives the required information, and if necessary the catalogues can be turned up so that full details are available in a matter of seconds. A large number of trade names are included in catalogues and these can be extracted at the time of classification and card indexed accordingly. They can be culled from many other sources, and every opportunity should be made to add to this index. As an adjunct to this index there is to be found a list of trade names in practically every trade directory. This index serves also a further purpose if, in addition, cards are included briefly noting the names given to various processes, projects, systems and methods. And then of course, an index of addresses. That is a must—and the fuller the better.

And now the storing of material. The manner in which this is done is very much a domestic matter, dependent mainly upon three things, namely, accommodation available, amount of money available, and one's personal preference. At my Association a simple and straightforward method has proved very satisfactory. Each manufacturer is allotted a foolscap-size simple pocket-file, in which are kept his catalogues, photographs, analyses and other data, informative letters, drawings and other relevent trade matter. These folders are then filed alphabetically in transfer boxes—an average of ten files to a box—the front of the box labelled to denote contents and filed in order on shelves. This is flexible and allows easily for expansion. It further allows the isolation of any one manufacturer's file for use or for sending away on loan. There are other ways of storing, such as in an orthodox four-or-five-draw filing cabinet, but the system described has proved adequate and efficient in practice.

So we come to the operation of the section. How do we deal with inquiries? Normally, in straightforward inquiries, we turn up the appropriate card, or manufacturer's file, making a search of the trade literature if necessary, and come to the answer. But inquiries vary widely, and not all the information required is always at hand. In such cases we contact the Liaison Department, or the department most likely to have such information, or maybe the Information Officer for anything which may be contained in the literature. Failing these we must make inquiries outside the establishment. And here we have a wide field, for some of those we call upon include any other Government grant-aided industrial research association, DSIR research establishments, local bodies such as Chambers of Commerce, reference departments in public libraries, trade associations, learned bodies and many others and—forgive me—Aslib also. With all this at hand it is very rare that an inquiry cannot be answered.

These inquiries come mainly from our own staff and secondly through member firms, but a number are received from widely different interests all over the world. Difficulties arise at times from various causes such as incorrect details being given, the inquirer—and believe this—requiring quite different information than that for which he asks, and sometimes on a matter to which there just is not an answer. Incidentally—so far as I know the youngest inquirer we have had was, I believe, aged eight.

It might be well to give here some idea of the time and quantity factors. As I have just said, most of the inquiries come from our own staff and these may be as many as twenty-five or more in a day. At a rough estimate probably between three thousand to four thousand inquiries are dealt with during the year. Obviously then, the time factor is important and this is where the simple system and convenient layout count for much. One great help is what one might call the 'prepared' answer. To some inquiries there is a common answer—for instance—a recurring request for suppliers of, say, white burning sands. A full and detailed answer to this has been prepared and manifolded, so that the time taken to answer these inquiries is practically nil. Every effort is made to reply the same day as the inquiry is received although that is not always possible. Sometimes it is necessary for an outside inquirer to see a catalogue in order to receive a complete answer—in such cases catalogues are sent out on loan. The staff, of course, have full access to all catalogues and the privilege of borrowing them. To keep track of them a simple loans register is all that is required. A final note in regard to the operation of the section—a certain amount of caution must be exercised in replying to inquiries. When an inquiry calls for the name of a manufacturer of a particular kind of product it is as well to send always more than one name for, apart from giving the inquirer some selection, it also preserves our impartiality. If, as does occasionally happen, only one firm is known, then that fact should be stated in the reply. If there should be any doubts on the matter of impartiality or the correctness of the information sent, then it should be covered by saying that the reply is sent without prejudice and with reserve.

Now one or two pitfalls. Classification: this is a very individual thing and seldom will two people classify the same, and so it is good practice to make this one person's charge. Then filing—the bugbear, and the Cinderella of all departments. How important it is—but oh, how neglected. Apart from the apathetic attitude towards it, it amazes me how so many people can file so many things in so many wrong places. But it does need strict and prompt attention.

A word about the staff. The number and grading required will depend mainly on the amount of work, the establishment allowed, and the amount of money apportioned for information work. But the officer in charge of a trade and reference section should have certain qualifications and amongst these I would list the following:

A knowledge of his own particular industry.

A knowledge of numerous other industries, including manufacturing processes.

Some knowledge of chemistry, physics, mechanical and electrical engineering, library and information work.

A knowledge of the various markets and market values.

Some commercial experience.

And, I would add—plenty of common sense.

Finally, I come to the types of inquiries received—some ordinary—some unusual. First the ordinary:

Where can we get some felspar?

Is there a firm who will contract to blast clay for us?

Is there an English maker of an automatic press for electroceramic small parts? (Here we knew there wasn't one, so we circularized a large number of firms to sound the possibilities of development of such a machine. Two firms have so far considered going further.)

Can we have a list of French makers of salt-glazed pipes; and who makes a horizontal pipe machine in America?

What is Sintox—and who makes it? Also, what are its properties?

We have been asked to send details of the following products to friends in South America—can you tell us which firms to approach? (Sometimes as many as fifty different items are listed.)

We are starting a laboratory in our works, what do we require, and where do we get it?

So much for the simple and ordinary inquiries. But now—just a few unusual ones and what happened about them.

Where can we buy seashells?—Frankly I was a bit nonplussed, but it was a serious inquiry, although we could only imagine they were wanted either for paving the Governor's garden or as a cheap source of lime. However by sheer luck we had the answer within ten minutes—in an old discarded directory we discovered there was just one man in London who supplied the very thing.

Who supplies blackboards? Quite removed from ceramics, but probably wanted for a laboratory or lecture room.

Which are the twelve largest cities or towns in the British Isles? That presented no difficulty.

Where can we buy narrow cotton lace?—Although we have had this inquiry only once it did not surprise us. We imagined the manufacturer was going to make some art-ware figures of ladies in pretty coloured dresses and edge them with lace. To get this effect the potter would soak an ordinary cotton lace in a clay slip and fasten it to his ware. During firing the cotton would burn away, but the slip covering the threads would be hardened and fired to become a ceramic lace of the same pattern as the cotton. Here again we were in luck, as the officer handling this inquiry had had experience in the lace trade many years previously, but still remembered some suitable suppliers.

Then there was the case of the knitting needles, which also seems far removed from ceramics. The inquirer telephoned—could we tell him where to get some thick knitting needles. We said we would ring him back. Immediately we contacted a local draper who asked what we wanted them for. We explained, and the woman said they supplied exactly the same thing to one of the pottery manufacturers, but added that she was out of stock, but that the traveller who supplied her had just called and was with her at that very moment. We replied—'Hold that traveller!' We got back on the phone to our inquirer, told him to ring this woman and said she was holding the traveller there ready to book his order. Which, by the way, the traveller did —all within minutes. Incidentally—thick knitting needles are used to make the holes in a teapot at a point where the spout joins the body.

To conclude, let me tell you of an incident such as happens only too rarely. One day I was reading an article which was concerned with a new product, which we will call Brand X, and which contained much information regarding the manufacturing process, performance, etc. As I came to the last few lines the telephone rang and I put down the article. Came a voice 'Have you ever heard of Brand X?' I picked up the article and promptly gave the fullest details with the air of one who carries all such information in one's head.

SPECIAL LIBRARY AND INFORMATION TRAINING IN THE MIDLANDS

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Northern and Midland Branches Joint Conference, Keele, 22nd July 1961

IN 1958 a number of librarians and information officers in the Midlands met informally with the staff of the Birmingham School of Librarianship to discuss what could be done, at a local level, to train their staff in the technique of librarianship and information work. This is not to suggest that the information bureaux and special libraries in the area are staffed by unqualified amateurs. On the contrary we are fortunate in having a considerable number of highly qualified librarians and information officers in the area. Their interest and enthusiasm in the Scheme of Training is an indication of this.

The meeting felt that many of the younger members of their staffs were not receiving sufficient formal instruction in the principles of special librarianship. A high proportion of the assistants concerned were attending classes at the School of Librarianship (*Senior Lecturer-in-Charge,* R. N. Lock, F.L.A.), but it was appreciated that study for the Library Association's Examinations, whilst providing a good background of general principles and techniques, was not in itself sufficient. It was decided to raise the topic at the next committee meeting of the Midlands Branch of Aslib. It was discussed and the committee agreed to co-operate with the Birmingham School of Librarianship in the provision of a special 'Course of Study for Information Work' for the academic year 1958–9. Not unnaturally a committee was set up to work out the details of a syllabus.

The first point the committee had to consider was the level at which to aim the course. In discussion it emerged that there was a need for a comprehensive initiation course for the newer members of the staffs. In the four or five years prior to 1958 most special libraries and information bureaux in the area had undergone considerable expansion. It was felt that a course of instruction for the assistant recently appointed would be an immediate and positive benefit to the majority of the organizations in the area. As the meetings of the committee progressed they became increasingly interesting. For in essence the committee was discussing and formulating the principles of training for special librarians and information officers. It was felt that the important topics could be grouped under six main headings:

1. Organization and functions. Administration.
2. Materials and sources.
3. Techniques of acquisition and recording of receipt.
4. Organization of information.
5. Dissemination of information.
6. Special topics.

You will see from the notes, printed in the Appendix, the main topics which we felt should be incorporated under each heading.

From the outset we realized that the course would be particularly effective if we could bring in practicising special librarians and information officers to cover the more specialized aspects of the course. Consequently it was decided to ask the parent body of the School of Librarianship, the City of Birmingham College of Commerce (*Principal,* A. M. B. Rule, M.B.E., M.A., LL.B.), to sponsor the course. This meant that visiting lecturers could be engaged as required and a certificate awarded to successful students at the end.

Our colleagues were most willing to take part in this scheme of studies and we were fortunate in obtaining the services of:

L. T. Oldaker (Tube Investments) to cover topics 1 and 2.
E. H. C. Driver (Birmingham CAT) to cover topics 3 and 19.
L. G. Patrick (British Aluminium) to cover topic 5.
B. H. Vickery (GKN Research) to cover topic 6.
D. R. C. Whale (Tube Investments) to cover topics 7 and 16.
K. Boodson (ICI (Metals)) to cover topic 13.
W. Ashworth (British Nylon Spinners) to cover topic 14.
Mrs S. M. Stone (ICI (Metals)) 15.
D. Mason (ICI (Dyestuffs)) 17.
L. Kay (ICI (Hyde)) 20.

The remaining lectures were given by members of the staff of the School of Librarianship.

We appreciated that the standard of the lectures would depend very much on the actual enrolment for the course. Details of the course of study were circulated and provisional enrolments invited. There was a considerable response and, as we expected, the background and qualifications of the prospective students varied enormously. However, they had one thing in common—a need for training in special librarianship and information work. Fifteen students were finally enrolled.

[*First year:* 5 graduates, 4 chartered librarians, 6 without academic qualifications.]

We felt that in the first year we could not reject too many applications from students on the grounds of lacking academic qualifications. We had decided that the first object of the course was to meet an immediate training need. The prospective students had shown sufficient interest in their duties to wish to learn more about them (often in their own time). Consequently we had a duty to provide an appropriate course. It was therefore decided not to require any stringent pre-entry qualifications until the student enrolled for the subsequent advanced courses, which we had by now decided should be held in the following years.

The notes which are appended will, I hope, show the purpose of the first year's course and will illustrate the topics which we felt were of particular importance to the new assistant in this field. You will notice that instruction in professional techniques, e.g. cataloguing and classification, was limited to the fundamental principles and their application.

Questions for the examination at the end of the course were obtained from the lecturers. The papers were marked by the lecturers who set the appropriate question and then the overall result was assessed by the committee organizing the examinations. In addition we gave each student an assessed rating based on his or her work over the year. All students who took the examination passed, some with particular merit.

The final meeting of the class, when the papers were returned and discussed, proved most interesting. A number of comments and criticisms were made and they were most useful for the organizers of the course, who were by now considering plans for the following year.

This was the only year in which a full-scale examination was held. To my mind it was, and is, the most satisfactory method. We were able to plan a syllabus, teach to it, and then examine the students and find out how effective our work had been. The students themselves gained, not only in their immediate duties but also in a wider appreciation of the career they had chosen for themselves. In addition they had a College Certificate of some standing which in some cases gained them promotion. We also hope that we made some contribution to the staff training programme in the individual organizations.

The second year's course was intended as an intensive advanced course for senior information workers. It was stipulated:

i. they should hold a responsible position;

ii. have an academic or professional qualification or have attended the previous year's course and have been awarded the College Certificate.

The short sessional course of twelve weeks spread over two terms was decided on because it was felt that the majority of senior information workers were not in a position to commit themselves regularly for the longer period.

Once again we were fortunate in being able to call on experts in particular fields:

Cataloguing and Classification 1 and 2 was covered by K. Bakewell of British Plaster Board Limited.

Cataloguing and Classification 3 by Miss J. Binns (as she was then) of English Electric Limited.

4, 5, and 6 were covered by K. Boodson and Mrs S. Stone of ICI (Metals) Limited (their experiences in the production of the *Titanium Abstract Bulletin* were particularly interesting and informative).

It was decided not to hold an examination at the end of this course—merely to issue a College Certificate of attendance with an assessment. Twenty-six students were enrolled.

[*Second year:* 8 graduates, 11 chartered librarians, 7 without academic qualifications.]

Whilst we were planning the third year's course we began receiving a number of requests from chartered librarians who were anxious to take the Library Association Final examination part 4 (e)—Presentation and Dissemination of Information. [Five of these subsequently enrolled on the course.]

After discussion it was decided to build a course around this syllabus, expanding it where it was felt necessary and forming, we hoped, a course of a very high standard. It was considered that this course should form the epitome of the three years' work. The course was advertised and fourteen students were enrolled.

[*Third year:* 6 graduates, 6 chartered librarians (one of whom had a degree also), 2 without academic qualifications.]

In the planning of this course we felt very strongly that at this level we must concentrate on the 'presentation and dissemination' aspect of the subject. We had enrolled a body of students all occupying responsible positions and who appeared to be well versed in the techniques of their professions. In addition several of the students were engaged in the fields of abstracting and translation and were looking for some practical instruction in these fields.

We were fortunate in securing the services of one of my colleagues at the College of Commerce, Mr F. E. Pardoe. He is the lecturer in Communication and English and also has considerable experience of French translation. Mr Pardoe covered topics 1–8 and 15–17. One of the college lecturers in law dealt with topics 13 and 14 and the remainder were covered either by visiting specialists or the School of Librarianship lecturers.

On looking at the syllabus you may perhaps wonder if visits to the Birmingham School of Printing (21 and 22) were necessary. We felt that they were—being of the opinion that very few special librarians and information workers are able to gain a knowledge of printing and the various types of reproduction processes which are available to them for the propagation of their material.

As you will have noticed, Mr Pardoe lectured for the greater part of the course and I can only attempt to pass on to you what he set out to do in his lectures. At this point in my paper I feel very much that it is he, not I, who should be addressing you this evening.

Mr Pardoe has done a considerable amount of work in the field of communication and he attempted to build a series of specialized lectures around the general conclusions he had reached on the function of management communication. He sketched the strengths and weaknesses in the pattern of information dissemination.

In addition I feel the lectures on the technique of writing were of considerable importance, because, obviously, there is no point in disseminating ambiguous information.

With regard to the lectures on law, again I can only speak from second hand. At this level we felt that the student needed the full accurate legal situation pertaining to the fields of libel and copyright.

In the field of mechanical and electronic methods of information retrieval we were fortunate in obtaining the services of Mr C. P. Auguer (Joseph Lucas Limited)—we all recall his Library Association Prize Essay on this topic. Since then his interest and researches have continued.

In addition to lecture 18 we were fortunate in that Mr Mills, of the North-Western Polytechnic School of Librarianship, spoke, during the year, to an Aslib branch meeting on classification and indexing. The students attended this meeting. Topic 20 was covered by Mr D. Whale of Tube Investments Limited—his knowledge and interest in this field were of particular value.

It was not considered feasible to hold an examination at the end of the course (a certain amount of practical written work had been done during the year). Four of the Chartered Librarians took the Library Association examination and, as you can imagine, we await the results with more than considerable interest!

At present we are not quite certain what our plans for next year will be. The college is moving to a new building in December and we feel that we cannot start a new course before January 1962. However, we shortly intend to discuss the nature of next year's course as we know there is a demand for this scheme to continue.

Some general information about the organizations from which we drew our total of nearly sixty students over the three years may be of interest:

Colleges of Technology	4 per cent
Aircraft Companies	4 ,,
Automobile Manufacturers	4 ,,
Automobile Components Companies	8 ,,
Government Research Stations	8 ,,
Research Associations	12 ,,
Rubber Companies	12 ,,
University and Public Libraries	16 ,,
Large Engineering Companies	32 ,,

A more detailed examination shows that the majority of students came from the larger firms. This, I think, is a great pity, as I feel that the information workers in the smaller organizations—often without an established information service—can gain a great deal from these courses.

Obviously the students gained a great deal from being in contact with each other; this was particularly so in discussion. We felt that the discussions were very useful and informative—particularly to the students from the smaller organizations.

I cannot say how the courses we have been running at the Birmingham School of Librarianship measure up to the ideas of Messrs Farradane and Ingham, but on looking at the syllabus of the Institute of Information Scientists it would appear that we covered most of its topics in our work over the three years.

The Birmingham courses aimed to be as general and comprehensive as could be made compatible with the needs of the information workers in the area. Such a course does not, I feel, take the place of Library Association examinations. Many of you, I know, will not agree with this point. Nevertheless I do feel that there is a basic grammar of Librarianship which must be learnt by people who have the responsibility for administering collections of literature. I know, of course, that many eminent special librarians have never acquired this 'grammar' formally, but I think that this is possibly due to the fact that facilities for study were not easily available to them early in their careers.

Incidentally, the Library Association courses are supported strongly by the special libraries in the Birmingham area. We find very good students coming forward from such organizations. They make a particularly useful leavening to a class of general librarians.

Perhaps I should emphasize that the yearly series of lectures were meant to be self-contained. A number of students did attend each of the three years series. Other students were advised not to enrol for the first year but to wait until the second or third year's lectures so that they could attend a course which was aimed at their level.

I hope that I have been able to show that, in the main, education for special librarians must reflect, in certain parts of the syllabus, the local requirements of the area. How can this be accomplished? We now have the syllabus of the Institute of Information Scientists, the new Final Library Association papers on the dissemination of information, and the completely new Library Association Syllabus. Others have suggested a Higher National Certificate in Information Work. I personally would suggest that one way in which this can be done is by the award of a diploma by the Schools of Librarianship. Their local links would ensure an appropriate course of study.

I cannot close this account of education for special librarianship in the Midlands without paying a sincere tribute to the interest and assistance of the special librarians in the area. In particular I would like to say how particularly helpful we found Mr L. T. Oldaker and Mr D. Whale of Messrs Tube Investments Limited. They never lost interest in the project over the years and were always most free with their time and experience. Such a venture as this must be a co-operative one, if it is to have any value or effect. We certainly received this co-operation in the Midlands Area.

This concludes my account of education for special librarianship in the Midlands. I hope that in the discussion I will hear your frank comments on the course and in particular I should like to hear observations on the effectiveness of the courses from librarians and information officers who have sent staff to these courses.

APPENDIX

FIRST YEAR

Organization and functions. Administration

1. Introduction; Purpose and Functions; Types of Organizations; Types of Information Units; The line of Responsibility.
2. Staff (types, opportunities, problems); The Librarian/Information Officer role; The Technical Writer function; Co-ordination of information activities within an organization; Liaison with other Departments; Relations with users; Use of Scientific and Technical Specialists; Budgetary control.

Materials and sources

3. Published information; books; periodicals; reference material; standard specifications; Patent specifications; directories; manufacturers' literature; etc.
4. Published information; bibliographies; abstract publications; guides to literature; etc.
5. Unpublished information; internal; correspondence; external, e.g. Research Associations, Government Departments and other institutions, etc.
6. Selection of material: Relationship with budget: Discarding.

Techniques of acquisition and recording of receipt

7. Acquisition of stock: ordering, subscriptions, free literature, etc. Recording of acquisitions; accessions registers; invoice procedures; periodical receipt records; postal departments; etc.

Organization of information

8. Classification theory.
9. Classification procedure.
10. The link between classification and cataloguing.
11. Cataloguing methods.
12. Catalogues and indexes: classified, name and shelf indexes and catalogues; card and other systems; Uniterm, etc.; filing of card entries.

Dissemination of information

13. Information Bulletins and other publications; report editing; abstracting techniques; lists of additions to the library; etc.
14. Circulation of periodicals and other material; loans services, including all records.
15. Inquiries for information: minor inquiries; the information desk; telephone inquiries.
16. Inquiries for information: major literature searches; compilation of bibliographies; annotating; reviews and assessments of literature.

Special topics

17. Document reproduction: microfilm and similar techniques; reading machines, etc.
18. Binding: methods and records. Physical make-up of reports; Stapling, spiral ringing, etc. Printing and Duplication.
19. Storage and Shelving Methods: Layout of a library and/or information units; furniture and fittings.
20. Patents, Designs, Trade-marks, Copyright, including special problems of acquisition, organization and dissemination.
21. The language barrier. Translations. Co-operative translating schemes, indexes, etc. Mechanical translating.
22. Examination.
23. Return of scripts and discussion of course.

SECOND YEAR

1. Cataloguing and classification.
2. Cataloguing and classification.
3. Cataloguing and classification.
4. Preparation of abstracts.
5. Routine processes.
6. Practical presentation of abstracts.
7. Indexing of technical information.
8. Modern documentary reproduction.
9. Xerography.
10. Modern methods of information retrieval.
11. Modern methods of information retrieval.
12. Periodical provision.

THIRD YEAR

1. Communication and problems.
2. Technique of writing.
3. Technique of writing.
4. Technique of writing.
5. Methods and media of dissemination.
6. Methods and media of dissemination.
7. Presentation of ideas.
8. Style and language.
9. The duties and responsibilities of the Information Officer/Librarian.
10. Readership and choice of material.
11. Types of publications.
12. Editing.
13. Law of libel.
14. Law of copyright.
15. Abstracting.
16. Practical abstracting.
17. Collation of abstracts with originals.
18. Principles and practice of indexing in special libraries.
19. Mechanical and electronic methods of information retrieval.
20. Services offered by national and other organizations, e.g. DSIR, VINITI, etc.
21. Visit to Birmingham School of Printing (letterpress department).
22. Visit to Birmingham School of Printing (lithographic department).
23. Discussion of course.

N.B. (*i*) The third year extended over 30 weeks.
(*ii*) This course was also designed to cover the Library Association's Final Examination Part 4 (e)—Presentation and Dissemination of Information.

NATIONAL CENTRAL LIBRARY

THE 45th Annual Report of the Executive Committee of the National Central Library, for the thirteen months ending 31st March 1961, records the death of its Chairman, Mr W. C. Berwick Sayers, and the appointment of Mr L. R. McColvin as Chairman of the Committee.

The proposed new building has still not passed beyond the planning stage.

Work on the project for dealing with arrears in the insertion of material in the union catalogues of the Library has proceeded according to plan.

The Librarian has been appointed a member of a Ministry of Education Working Party to consider the detailed implications of the recommendations regarding library co-operation in the Roberts Committee's Report.

Telex was installed in March 1960 and its use has increased steadily.

Arrangements have been made to take over the work of the British Union Catalogue of Periodicals when this organization ceases its independent existence after the publication of a supplement to the original printed catalogue, in 1961.

An appeal in connection with subscriptions was sent to university and special libraries and to Regional Library Systems; it met with an immediate response and a list of new and increased subscriptions is given.

The stock of the Library was re-estimated as 177,000 volumes catalogued and 38,000 volumes awaiting cataloguing. An expansion of the Library's book acquisition policy has resulted in an increase in the number of requests dealt with immediately by loans from stock. Classification of the general stock has been discontinued, enabling storage space to be used more favourably and economizing in staff time.

Total applications received (excluding adult classes) were 94,163 and 74.13 per cent of these (69,805) were successfully dealt with. These figures are, in each case, above those reported for the previous year. 3,966 loans were made by British libraries to libraries overseas and 2,681 items were borrowed from overseas. Loans were made to fifty-five countries and publications were borrowed from thirty countries. The USSR was the chief lender to British libraries, followed by West Germany, France, the USA and East Germany. Czechoslovakia, Hungary, and West Germany were the main borrowers. University libraries lent 29,826 publications, including loans through regional library bureaux. The 337 outlier libraries lent 18,951 items and a further 4,440 loans were made by other special libraries.

The British National Book Centre extended its service to include foreign libraries; useful material in foreign languages has been received in return for material offered by British libraries to overseas libraries. The total number of books and periodicals redistributed to British, Commonwealth, and foreign libraries for the period under review was 158,796 compared with 109,174 during the previous year.

Letter to the Editor

Dear Madam,

As Aslib's Research Officer and others have frequently pointed out, the profession lacks much statistical data upon which it can draw in planning library operations. In addition a great deal has been said and written on the value of, and need for, library co-operation.

This library makes very considerable use of the help so generously given by many libraries in the name of library co-operation and we are naturally anxious to return this assistance whenever possible. In consequence, when we recently produced a list of our journal holdings we sent a copy to every library which had lent material to us recently, to many national and university libraries, and to all the regional bureaux and co-operative schemes. To extend the usefulness of this list it was designed to be kept up to date with loose-leaf supplements. With each copy sent out a form was enclosed for the recipient to return indicating *a* if further copies were required, *b* if supplements were required, *c* if a copy of our proposed *Current titles* list would be of any interest.

Of 114 forms sent out 25 (i.e. 21.9 per cent) have not been returned. As we find all holdings lists of great value and as the perpetual cry in the profession is still more co-operation, more bibliographical tools, more union lists, it seems strange to think that 21.9 per cent of the libraries in a sample of 114 appear to be little interested in a publication of the type in question. When the list of individual libraries constituting the 21.9 per cent is examined in detail the picture is even more perplexing, including as it does several national libraries and several whose special interests include food, the main subject covered by our list.

This experience may be of interest to your Research Department and to those who are contemplating sending out library publications.

Yours faithfully,

C. E. C. HEWETSON,

Librarian.

H. J. Heinz Company Ltd,
Harlesden,
London, N.W.10.

21st September 1961.

SELECTIONS FROM THE RECENT LITERATURE

ALL ITEMS listed may be borrowed from the Aslib Library, except those marked *, which may be consulted in the Library.

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MEMBERS' ADVERTISEMENTS

The charge for advertisements in these columns is 4*d* per word, minimum 5*s*. An additional charge of 6*d* is made for the use of a box number.

TRANSLATIONS into/from Dutch, from German and French. Also scanning/abstracting Common Market publications. Speller-Kuijpers, 5 Stratton Close, Hounslow, Middlesex. Hounslow 6954.

TRANSLATIONS, TECHNICAL, SCIENTIFIC, all languages, by specialists with sound technical and scientific qualifications. J. Smuts, BSC(ENG.), FIL, 12 Thorndene Avenue, London, N11. Tel. Stamford Hill 8564.

WILFRED E. GOODAY, ARSM, DIC, MIMM, FIL. Technical translation from French and Roumanian. 161 Rivermead Court, London, SW6. Renown 1912.

Appointments vacant

BX PLASTICS LIMITED. HEAD OF TECHNICAL WRITING SECTION. An interesting opportunity exists for a graduate who has experience in writing technical publications. He will need to be intelligent and clear-thinking with a good understanding of scientific matters. It would be an advantage if he had some experience of publication work and proof correction. He must be able to get on well with other Technical and Sales Staff with whom he will have to co-operate and he must have a flair for clear expression. For the right man this may lead to a more senior position once he has proved himself. The appointment will be based at the Research Station, which is situated in pleasant countryside on the Essex/Suffolk borders, within easy reach of the residential areas of Ipswich, Clacton, and Colchester. Write, giving full particulars and present salary to: Research Director, BX Plastics Limited, Lawford Place Research Station, Manningtree, Essex.

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LIBRARIAN (lady) required by the FIRE PROTECTION ASSOCIATION to take charge of technical library and records. Candidates should preferably be qualified and have had experience in a technical library. Salary commensurate with qualifications and experience. Non-contributory pension scheme. Applications, marked Private, giving full particulars and salary required to the Secretary, Fire Protection Association, 31–45 Gresham Street, London EC2.

Wanted

Control, no.11 (May 1959); *J. Electronics & Control,* June 1959, November 1960; *IBM Journal,* vol.2, nos.2 and 3. EMI Technical Library, Hayes 3888, ext. 2110.

BROUGHTON, H. H. *Electric winders.* 2nd ed. Spon, 1948. Northumberland County Technical College Library, Hawthorn Road, Ashington, Northumberland.

AN ASSISTANT
EXPERIMENTAL OFFICER
is required in the
MAIN LIBRARY
at the Atomic Energy Research Establishment, Harwell

to act as deputy to the Head of a Section of the Main Library. The successful applicant will work initially in the Report Room but could expect to be moved, probably to the Cataloguing Section, within a year.

Applicants should possess General Certificate of Education in five subjects including two scientific or mathematical subjects at 'A' level. They should be Fellows or Associates of the Library Association or hold equivalent qualification and should preferably have worked in a technical library.

Salary: £495 (at age 18)—£1,055 per annum.

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DUTIES: Responsible for the administration of the library services handling technical and scientific reports, books and periodicals covering a wide variety of fields, especially relating to Engineering and the physical sciences.

QUALIFICATIONS: University degree and Professional Membership of an approved Library Association, or equivalent qualifications. Academic qualifications related to the above fields would be an advantage.

CONDITIONS: The position offers permanent appointment to the Commonwealth Public Service and the successful applicant will be required to contribute to the Commonwealth Superannuation Scheme on confirmation of appointment. Under certain conditions air/sea transport for the appointee and dependants (wife and dependent children) will be provided by the Commonwealth.
Alternatively, consideration may be given to a three (3) or five (5) year contract of employment in Australia. In this case the Commonwealth will bear the cost of return fares, together with the cost of removing the successful applicant's furniture and effects up to a maximum cost of £500 (Australian), £250 each way.
NOTE.—Assistance will be given in obtaining housing accommodation.

APPLICATIONS: Forms obtainable from the Senior Representative (AV.126/5), Department of Supply, Australia House, Strand, London, W.C.2, with whom completed applications should be lodged as soon as possible.

ENGLISH ELECTRIC

AVIATION LIMITED

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As the Librarian will deal with customers' inquiries the ability for clear and concise expression is essential.

Applicants should write stating age, education and previous experience to the:

Manager of Personnel Selection
101 Wigmore Street, W.1
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YES, HE WILL BE PLEASED TO SEE YOU

BLACKWELL’S OXFORD

ASLIB PROCEEDINGS

incorporating Aslib Information

Volume 13 December 1961 Number 12

ASLIB CALENDAR
1962

January

TUE.9. – THUR.11. Aeronautical Group documentation course.

WED.10. Economics Group visit to Westminster Abbey library.

WED.17. Economics Group visit to Patent Office library.

MON.22 – TUE.23. Course on work with patents.

TUE.23. Winter meeting at Aslib. Speaker: Clifford Hatts.

WED.24. Economics Group meeting at Aslib.

THUR.25. Technical Translation Group Annual General Meeting at Aslib.

February

THUR.1. Economics Group visit to Royal Society of Arts library.

TUE.6. Fuel and Power Group visit to Castrol Ltd.

WED.14. Economics Group visit to Richard Thomas & Baldwins library.

WED.21. Winter meeting at Aslib. Speaker: C. W. Hanson.

WED.28. Economics Group visit to Aslib.

March

TUE.20. Fuel and Power Group 'Hobby-horse' evening.

April

FRI.13 – SUN.15. Aeronautical Group conference at the College of Aeronautics, Cranfield.

May

TUE.15. Fuel and Power Group Annual General Meeting.

June

FRI.1 – SUN.3. Electronics Group conference at Ashridge College.

Aslib wishes all readers a happy Christmas and New Year

Winter Meetings

Winter meetings will be held at 5.30 for 6 p.m. on Tuesday 23rd January and Wednesday 21st February at Aslib. On 23rd January Mr Clifford Hatts, a Senior Designer in the BBC Television Design Department, will speak about his work, with special reference to transmission of information by visual means. On 21st February Mr C. W. Hanson, Head of Research Department, Aslib, will report on work in progress in information and library research, other than that being carried out by Aslib.

Course on Work with Patents

A repetition of the course on work with patents and elementary patent practice will be held on 22nd and 23rd January 1962 at Aslib, to accommodate those who were not able to obtain places on the course held in November. Full details and application form are given in a leaflet enclosed with this issue.

Fuel and Power Group

On 25th October, members of the Group, joined on this occasion by members of the Engineering Group, visited the DSIR Building Research Station. On arrival at the Station the party, of about thirty persons, was given a quick 'briefing', after which it was divided into three groups and, each with a guide, taken on a tour of the various buildings. The first department visited was for research into basic materials, where members were shown how grey ash or silt from power stations is treated with water and, by a hardening process, made into various sized stones which in turn are cemented together to form strong blocks of building material. All kinds of bricks are tested in this department and a brick has been evolved which is lighter, easier to handle, needs less cement in building, and is cheaper to produce than the conventional brick. The advantages and disadvantages of various types of walls for buildings were demonstrated. The party was then shown the wind tunnel, for testing wind resistance.

The next building visited dealt with stresses and strains and pressures of all kinds; here tests can be undertaken for business firms. The merits and demerits of various types of central heating were demonstrated in another building and particular interest was shown in a 'home-made' computer which takes account of position of house or room, time, temperature, season, draught, and various other factors, in working out the temperature of a room or house. Another section visited was that dealing with different types of slow-burning or all-night fires, combustion heaters, and hot water systems. Research into various causes of smoking fires or chimneys and into fire hazard was explained. Special interest was shown in the library, which contains books and journals giving an extensive coverage of building in all its aspects. The system for circulation of reading matter within the Research Station and the lending facilities for outside organizations were explained. After nearly three hours spent at the Station members of the party felt they had only skimmed the surface of all they would have liked to see, and it was agreed that the visit had been very interesting and informative.

Technical Translation Group

The Annual General Meeting will be held at 2.30 p.m. on Thursday 25th January at Aslib. Following the business of the meeting tea will be served and, after tea, Mr A. R. Longley of ICI Heavy Organic Chemicals Division will give a talk on 'Translation problems in the chemical industry'.

A joint meeting of the Group Committee and the Committee of the Translators' Guild of the Institute of Linguists was held on 20th October at Aslib, and a permanent joint committee has been set up to study problems of mutual interest to the Group and the Guild.

FID Conference Proceedings

The proceedings of the FID 27th conference, of which a general report appears in this issue, are being published in one volume by FID. The conference volume will contain a report of the official opening of the conference by the Baroness Wootton of Abinger, a report of the final public session, summaries of papers on 'Highlights on recent developments in documentation' given by Dr K. Schneider, Mr A. C. van Schaik, Mr C. W. Cleverdon, and Mr Verner W. Clapp; reports of discussion following presentation of papers, and the texts of papers presented, as follows:

'Scientific and technical information' by Mr R. G. l'Hermite, Dr A. Moore, and Dr Y. Niwa.

'Economic and managerial information' by Professor R. W. Revans and Mr K. Havlíček.

'Efficient use of information' by Dr R. E. McBurney, Mr K. Klintøe, Mr W. T. Knox, and Mr J. de Laclémandière.

The conference volume (FID publ. 339) will be available from FID, 7 Hofweg, The Hague, Netherlands, price 10 guilders. A limited number of copies of individual papers also are available.

UDC Committee Report

The British Standards Institution has available a brief report on the UDC meetings held during the FID conference in September 1961. The report, AB(OC)7308, is available on request to the British Standards Institution, 2 Park Street, London W1.

Catalogue of Scientific and Technical Periodicals

The Library Association, Reference and Special Libraries Section, Western Group, announces that the second edition of its *Union catalogue of current scientific and technical periodicals* will be ready in January 1962, price 20*s*. The catalogue lists the holdings of 3,900 titles in seventy libraries. Advance orders, with remittance, will be appreciated and should be addressed to D. P. Woodworth, Librarian, National Coal Board Research Establishment, Stoke Orchard, Cheltenham. Cheques and postal orders should be made out to Library Association RS & I (W) Group.

Bibliography of Social Work and Administration

The eighth supplement, 1960, of the *Bibliography of social work and administration: a classified list of articles from selected British periodicals* is now available.

Subjects covered include: population, eugenics, labour, social work and casework, social services, criminology and penology, social psychology, and leisure. The supplement is published by the Joint University Council for Social and Public Administration, 218 Sussex Gardens, London W2, price 6*s*.

Council for Microphotography and Document Reproduction

This Council was organized in 1960 to 'offer advice on, and promote the use of, all forms of photographic reproduction in education, research, and commerce.' It plans to issue a bulletin, act as a clearing house for information and advice, organize conferences, and arrange for copyright clearances. Applications for membership are being accepted from all those interested in microphotography and document copying. Individual membership is 1 guinea per annum. Corporate subscription rates and other information are available on application to the Librarian and Research Officer, Library Association, Chaucer House, Malet Place, London WC1.

Chinese Bibliography on Metallurgy

The British Iron and Steel Industry Translation Service (BISITS) has translated from the Chinese *A guide to scientific and technical reference works: metal science and metallurgical processes section,* compiled by Zhao Ji-Sheng. The bibliography lists works on metallurgical aspects of heat engineering, electrical engineering, and lubrication; open-hearth slag at Anyang Steel Works; publications of the Metal Research Reports Council of Academica Sinica; and proceedings of Chinese conferences on ferrous metals, blast furnaces, and construction and services of metallurgical factories. BISI 2449 is available from the Iron and Steel Institute, 4 Grosvenor Gardens, London SW1, price £4 (£1 to libraries of academic institutions).

American Documentation

The American Documentation Institute publication *American Documentation* is now available on microcards. Volumes 1–11 (1950–61) may be purchased for $25 from Microcard Editions Inc, 901 Twenty-sixth Street, NW, Washington 7, DC, USA.

Automatic translation

The National Science Foundation, Washington, has awarded a contract to the Ramo-Wooldridge Corporation, Canoga Park, California, for further investigation of new techniques for language data processing. The programme will include processing 300,000 words of Russian text, with the object of compiling a dictionary.

University of Florida Libraries

Librarians interested in graduate assistantships for study in subject fields other than library science are invited to apply to the Director of Libraries, University of Florida, Gainsville, Florida, USA, before 15th March 1962.

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INFORMATION AT WORK

The 27th Conference of the International Federation for Documentation*

London, 6th to 16th September 1961

FOR the first time since 1938 one of the periodic unrestricted conferences of the FID was held in England. It took place in London, at the Caxton Hall, from 6th to 16th September 1961, and was attended by over five hundred delegates coming from thirty-eight countries and from all five continents. A strong contingent came from the United Kingdom and, of these, as might be expected, many were members of Aslib. Moreover, Aslib, as the British representative body in the Federation, was responsible for the arrangements.

The earlier part of the conference was devoted to meetings of committees, the Executive Bureau, and the General Assembly, while, on 9th September, a special session on automatic documentation was arranged by the FID Committee on Mechanized Storage and Retrieval (FID/MSR) under the chairmanship of Professor E. Pietsch, Director of the Gmelin Institute, Germany. Excursions to Oxford and Cambridge were organized for the 10th.

During the public sessions of the conference in the following week a small exhibition of interest to documentation workers was on show at Caxton Hall. Notes on some of the exhibits will be found on pp. 350–1.

OPENING SPEECHES

The unrestricted part of the conference was opened officially on the afternoon of Tuesday, 12th September, by the Baroness Wootton of Abinger, deputizing for Viscount Hailsham who was unable to attend. She was introduced by the Chairman, Dr Burton W. Adkinson, Head of the Office of Science Information, National Science Foundation, USA.

After referring to the great pleasure which she, in the unexpected role of deputy for Lord Hailsham, felt in being able to welcome the delegates to this truly international gathering, the Baroness Wootton touched on some problems of communication. The art of communication was supposed to distinguish men from the other animals but it was an art that was still sadly imperfect. Linguistic barriers were formidable but in the future these might be overcome by improved methods of mechanical translation. In the meantime progress in science and technology was already providing a vocabulary of nouns that were common to many peoples and, for documentalists, the numerical codes of the UDC could transcend language limitations. The speaker went on to make the point that the profession of documentation was a very disinterested one. It was not so much to extend knowledge for the glorification of members of the profession, as to make it more readily available for the probable glorification of other people. Nevertheless it was a profession of rapidly growing importance. The time was past when the consumers of information knew what they wanted and asked for it, and when the flow of information was available and within their capacity to absorb. Now, with the growth of an uncontrolled and uncontrollable supply, the flow of information had passed the capacity of the consumer to absorb. It was the responsibility of the documentalist to keep the channels clear. To do this he had had to take on a selective function with all the responsibility that that entails.

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* The full proceedings of the conference or copies of individual papers are available from FID, 7 Hofweg, The Hague, Holland.

Following the opening address, the Chairman referred with deep regret to the loss, in the field of documentation, of a great friend and a great leader in the passing of Fritz Donker Duyvis, late Secretary-General of the FID, and members then stood in silence for a few moments as a mark of respect to his memory.

In his tribute to the late Secretary-General, Dr Burton Adkinson had likened his passing to 'the quiet closing of a door on an age', the age of the pioneers of documentation such as Otlet and La Fontaine, and of the devoted amateurs who had followed them. Now he turned to the role that the FID must play in the modern world. The Baroness Wootton had referred to the problem of communication; he now touched on the volume of information that had to be communicated. It had been estimated that nearly three million articles were published annually in science and technology and, furthermore, the volume of information produced was expected to double every ten years or less. If the FID was to play its rightful part in collecting and disseminating information on documentation, that is, on activities which would direct and control the flow of information, it would need full intellectual co-operation and support by its members and also the necessary financial support. Dr Adkinson hoped that members and observers would return to their own countries convinced of the need to control the output of literature and of the advantages of co-operation through the FID.

After this introduction, the Chairman presented the four speakers who were to contribute to the theme 'Highlights on recent developments in documentation'.

HIGHLIGHTS ON RECENT DEVELOPMENTS IN DOCUMENTATION

The first speaker was Dr K. Schneider, of the Gmelin-Institut, Frankfurt. He described the use of electric typewriters operated by means of punched cards as an aid in documentation work, specially for the compilation of bibliographies and of indexes. The device used is the IBM 24–866 which is the combination of the card punch IBM 24 and the automatic typewriter IBM 866. The typewriter is entirely controlled by impulses from the card punch IBM 24 and since eighty-six characters can be used, normal typewritten texts can be obtained suitable for reproduction by offset. A further development of this machine is the IBM 870. With this apparatus the connected typewriters can be controlled both by punched cards and punched tape.

Mr A. C. van Schaik, of the Technisch Documentatie en Informatie Centrum voor de Krijgesmacht at The Hague, described the advantages of bibliographical co-operation as experienced in the Netherlands. Co-operation within a special field of interest avoids duplication of work, gives better results, and speeds up the flow of information. Co-operation can be organized in two ways. One central documentation department can be established, each participant paying a share of the total costs, or the total number of periodicals can be divided up among the participants, each of whom will document his share and send the abstracts to a central pool. In either case there should be one co-ordinating point and an editorial committee which should meet regularly to control the work and to assess the results. There should be one classification system. The abstracts themselves can be stored in a centre to which each of the participants has access, or they can be duplicated on cards so that each participant gets a copy, or an abstracting journal, in mimeographed or printed form, can be produced. Costs cover the total subscriptions for all the periodicals in the 'pool', the salaries of the abstractors and the clerical work for the cards or abstracting journal. These are divided between the participants. If outsiders wish to have access to the resulting information, a high subscription price should be charged to avoid the danger that co-operation may be refused by some potential members of the group because buying the abstracts is cheaper. Mr van Schaik mentioned that in the Netherlands co-operation has already been established in the fields of building, agriculture, aeronautics, traffic, and the automobile industry.

The third speaker was Mr C. W. Cleverdon, Librarian of the College of Aeronautics, Cranfield, who gave an account of the Aslib Cranfield investigation into the efficiency of indexing systems. The history and form of this investigation will be familiar to Aslib members and need not be repeated here.* Mr Cleverdon also reported that a method had been evolved which permits the performance of any existing index to be measured, and stated that some tests of this nature were now in progress. The extension of such tests will result in the accumulation of further information concerning the basic principles of indexing systems and will enable an assessment to be made as to whether the results obtained in the present investigation are valid in other subject fields and situations. He said that the continuation of the project is intended to be in assessing the performance of a number of different fundamental descriptor languages in relation to their ability to retrieve information with the maximum of 'message' and the minimum of 'noise'.

The last item of the opening session was a report by Mr Verner W. Clapp, of the Council on Library Resources Inc., Washington DC, on progress in documentation in the United States since the FID conference at Rio de Janeiro in 1960. In his absence it was presented by Mr Karl F. Heumann.

Mr Clapp had selected for mention a few of the most notable developments in American documentation during the past twelve months. Under the heading 'Copying', he reported the great advances made by Xerox 914 and the Xerox Copyflo. For smaller users there were further developments in reader-printers which permit the viewing of microfilm on a screen and the taking of hard copies of selected frames. These were being tested by the Library Technology Project of the American Library Association. A reader-printer for microcards had been demonstrated by the Microcard Corporation and production was promised for the end of 1961.

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* See *Aslib Proceedings*, vol. 12, no. 12, Dec. 1960, pp. 421–31.

Extension of copying services naturally raised questions of copyright. The Joint Libraries Committee on Fair Use in Photocopying concluded its four-year study in March 1961. It found that the making of a single copy is a direct and natural extension of traditional library service. The Committee therefore recommended that it be library policy to fill an order for a single photocopy of any published work or part thereof. The Copyright Office had also been conducting studies in preparation for the revision of the US Copyright Act and its report was submitted to Congress in July 1961. This included a recommendation that a library, whose collections are available to the public without charge, should be permitted to supply a single photocopy of one article in any issue of a periodical, or of a reasonable part of any other publication in its collections, to an applicant who states in writing that he needs and will use the photocopy solely for his own research; or a single copy of an entire publication when the applicant states in writing, and the library is not otherwise informed, that a copy is not available from the publishers. The library would have the responsibility of affixing to the photocopy a warning that the material appeared to be copyrighted.

Turning to the subject of machine translation, Mr Clapp said that at the end of June 1960 the Committee on Science and Astronautics of the House of Representatives of the US Congress had issued a report on research in mechanical translation. Amongst other things, the report drew attention to the 10-inch glass storage disc invented for the Air Force by Dr Gilbert King of the IBM. This was stated to have a capacity of 550,000 English words with their foreign equivalents and to be capable of a look-up rate of thirty words per minute.

There had been two significant developments in the field of equipment for putting microtext to use in information storage and retrieval. FMA Inc. was making the first installation of its Filesearch, which includes a Recording Unit and a Retrieval Unit. The Recording Unit reduces documents to microfilm and at the same time descriptors are also recorded on the film in code. The Retrieval Unit searches the film at the rate of 6,400 frames a minute. The codes for the descriptors defining the search are punched into a tabulating card and when the Unit finds a match between the card and a document, it stops and projects the first page of the document on to a screen. If desired it can make a blown-up copy of the document on paper or a 1 : 1 copy on film.

Slightly earlier in 1961 the IBM Company demonstrated WALNUT, its system for photostorage and rapid retrieval. A cylindrical bin or tub contains two hundred vertical plastic tubes. Into each tube slide up to fifty film strips, each bearing ninety-nine photographic images of documents. The capacity of one tub accordingly represents approximately one million pages. When the particulars of a desired document have been ascertained by indexing techniques, the tub is caused to move into such a position that the correct film strip may be grasped and lifted out of its tube to a height at which the desired image is placed before a lens and a blown-up copy made—all in five seconds.

Mr Verner Clapp instanced several interesting applications of computer systems to documentation. The National Library of Medicine was actively experimenting with MEDLARS (Medical Literature Analysis and Retrieval System), by which it hoped to be able to print out lists of articles of interest to the several fields within medicine, such as cancer research. Early in 1961 the

Armed Services Technical Information Agency issued a report on the evolution of the ASTIA Automated Search and Retrieval System which used a thesaurus of descriptors and a UNIVAC Solid State 90 computer. Experiments in the use of computers for searching legal material were being conducted under the auspices of the American Bar Association. In one, Mr John F. Horty, Director of the Health Law Center of the University of Pittsburgh, was using an IBM 650 to search statutory law and the results would be compared for cost and adequacy with the results of searches made in the traditional manner. In another, Professor Robert T. Morgan of Oklahoma State University, working with an IBM 1401, had demonstrated 'electronic legal research', dealing with case law.

Lastly Mr Clapp mentioned some of the more important meetings that had been held in the USA during the past twelve months. These included the National Law and Electronics Conference, held from 21st to 23rd October 1961 to consider the possible application of machines in the administration of justice. A Gordon Research Conference held in July 1961 considered scientific and information problems in research, and a round table conference on information retrieval in the social sciences, sponsored by the universities of Syracuse and Western Reserve, was held in the same month to explore the possibilities of a more formal conference on the same subject at a later date.

Because of the lateness of the hour, these papers could not be discussed.

Later in the evening the delegates assembled again at a reception given by the Vice-Chancellor of the University of London and Mrs P. S. Noble. This was held at the Senate House and delegates had an opportunity of inspecting the University Library, including the new Periodicals Wing and such special collections as the Durning-Lawrence Library, the Paleography Room, and the Sterling Library, where many items of great interest were displayed.

SCIENTIFIC AND TECHNICAL INFORMATION

The theme of the Wednesday morning session was scientific and technical information and the Chairman was Dr M. A. T. Rogers, Research Controller, ICI Ltd., deputizing for Dr T. E. Allibone who was unfortunately indisposed.

The first speaker was Mr R. G. l'Hermite, Directeur Général de la Recherche pour le Bâtiment et les Travaux Publics, Paris. He was particularly concerned with the form in which scientific information was presented. Such information should take different forms when directed towards research workers, professional groups, or the general public. He felt that the problems arising from the growing flood of technical literature were aggravated by confusion in the mode of presentation. In some detail he defined and considered the varying forms of treatises, statements, surveys, and notes or news-items which are needed by the various types of information-users. Journals should be more specialized in subject matter or, an alternative already being tried successfully in the *Bulletin Signalétique* of the Centre National de la Recherche Scientifique, they should be divided by subject into 'sub-journals'. It had been objected that too much narrow specialization was bad even for the specialist; this could be remedied if the publication of scientific and technical information journals on the general knowledge level was encouraged and the news-items in them carefully adapted to the scientific level of their readers. Nevertheless there would still remain the problem of conveying the results of research and development in technology in a language and form which could be understood by the professional man, who had neither the time nor the training to master scientific speculations. Finally he stressed the value of the survey, the synthesis, the exhaustive treatise. This was an undertaking that could only be done satisfactorily by a team and the results needed most skilful editing; moreover the preparation of new editions should start as soon as the first had been published. Such surveys could be the best way 'to leave to those who will come after us, the fruit of our efforts and the heritage which we owe them.'

Dr A. M. Moore, of the Research Laboratory, Parke Davis and Company, Ann Arbor, Michigan, spoke on the US pharmaceutical industry's need for scientific information. Three years ago the Pharmaceutical Manufacturers' Association (PMA) had set up a Literature Committee to study information problems, to consider the application of machine methods, and to establish rapport with indexing, abstracting, and other information services. Each company may subscribe to as many as seven hundred or more journals, indexing and abstracting services. Most companies now have mechanical equipment for handling their chemical-biological data and some are applying it to the retrieval of information from the scientific literature. The PMA Literature Committee preferred to work with existing services such as *Chemical Abstracts, Biological Abstracts,* and *Index Medicus,* but two recent innovations should be mentioned. One was the *Index Chemicus,* composed entirely of the structural formulae of organic compounds appearing in current literature, together with a molecular formula index to these compounds, prepared on a computer. The time gap between the receipt of a journal in the library and the receipt of *Index Chemicus* varied from only fifteen to seventy-seven days. The service was expensive but it was now a financial success and self-supporting. The other venture was the Documentation Ring of the Pharmaceutical Industry, comprising five European companies and one American company which had joined together to abstract and index the chemical, biological, and medical literature.

The last speaker at the morning session was Dr Y. Niwa, President of the Japan Information Center of Science and Technology, Tokyo. Dr Niwa sketched the growth of Japanese scientific activity and the rise of industrialism. At first this was dependent on European sources but the First World War interrupted communications and originated a tendency towards scientific and technical independence which was shown in the creation of a number of research institutions. In the period of reconstruction following the Second World War, the Japan Science Council was formed and in 1949 the Council put forward the proposal to establish a scientific information institution which would lessen Japan's dependence on outside abstracting and indexing services. A small beginning was made in 1952 and in 1957 the Japan Information Center of Science and Technology (JICST) was fully established under the executive supervision of the Prime Minister. This is a centralized national abstracting and indexing service and has yet to solve a number of problems. These include the following: *i,* the acquisition of foreign periodicals, patents, etc. (about three thousand periodicals were collected in 1961; it is hoped to reach ten thousand by 1965); *ii,* the organization of the abstracting service which will have to be greatly expanded if the periodicals are to be properly abstracted; *iii,* storage of both the publications received and the abstracts (with this problem there is associated also the problem of retrieval and experiments in mechanization are being carried out); *iv,* theoretical investigation of the mechanization of information processing is being carried out under the auspices of the JICST. An English–Japanese translation machine named YAMATO has already been evolved and a German–Japanese machine is projected. A fifth item is the further development of the JICST information searching service which, in turn, depends on the solution of the sixth problem, the vitally important training of information specialists, for whom there is great demand both by JICST itself and by the larger industrial concerns. The development of Japanese science and technology is a direct concern of the Government and the organization of scientific information has a recognized and important part in these schemes.

DISCUSSION

The discussion which followed these three papers was opened by Dr B. K. Blount (UK) who said that he thought that far more radical changes were required if scientists were to receive the information they needed. He suggested that authors of papers should submit them to a national publication organization which, if the papers were acceptable, would print them as separates and send them back to the authors for personal distribution. Copies of the papers would be sent to an international organization which would publish an index of titles only and those interested could write directly to the author for copies. Ordinary scientific journals would tend to disappear but this might be a good thing if their place were taken by review-journals and surveys which would enable scientists to follow developments outside their own specialist fields.

Mr A. H. Holloway (UK) was concerned lest there should be any serious decrease in scientific publication but agreed with Mr l'Hermite and Dr Blount that review and survey publications, if extended, might meet the need. Unfortunately such publications could only be written satisfactorily by experts working in the field and most men of that type preferred to continue their work in the laboratory rather than to write about it.

Mr l'Hermite agreed that often the people most concerned with scientific questions did not have the time to write about them. They should be encouraged to write, however, and the big scientific research organizations could give help either by the provision of basic equipment, such as a typewriter, or by the appointment of an assistant to provide the scientist with the necessary time to record the results of his work.

Dr A. Moore (USA) emphasized that better titles for papers would help people to keep track of needed information.

Professor E. Wegelius (Finland) said that while Japan, the United States, and the USSR might be able to cope with the problem, it was more difficult for the smaller countries. He did not think that the scientists themselves would be able to distribute their papers effectively, or that they would want to do so, but the research institutions could do it on their behalf.

Mr W. E. Clason (Netherlands) doubted whether Dr Blount's solution was practical. The periodical would stay although the monograph was what was really needed. All the same the journals could be so printed that the articles could be detached for ease of reference.

Mr J. B. Reed (UK) agreed with Dr Moore that the titles of papers could be improved and that this would help international abstracting.

Dr M. A. T. Rogers thought that some of the worst offenders in the matter of titles were the patent specifications.

Dr B. K. Blount (UK) returned to the question of the distribution of papers. It might be easier to do it through a national organization or through the research institution in which the scientist worked but direct communication between the author and the person who wished to read his paper was desirable and could bring back something of the personal relationship which had existed in research a hundred and fifty years ago. With regard to titles of papers, he thought it was a matter which should be taken up internationally and he wondered whether FID could do something about it.

Mr William T. Knox (USA) wondered how many of those present were practising scientists or engineers. Their presence at such discussions was a vital ingredient because, unless they themselves felt the need for new kinds of help, no FID schemes would succeed.

Mr R. G. l'Hermite pointed out that material for documentation was part of the raw material for research, and such information must be of good quality. It should be so presented that it did not waste the time of the research worker and the documentalist could help in achieving this. Even unorthodox methods might be successful. He had once written a book in the form of cartoon strips and it had sold twenty-five times more than his scientific treatise!

ECONOMIC AND MANAGERIAL INFORMATION

Papers read at the Wednesday afternoon session were concerned with economic and managerial information. The Chairman, Mr G. Deurinck, of the Fondation Industrie-Université pour le perfectionnement des dirigeants d'entreprises, Belgium, said that he had noted the tremendous confusion prevailing with regard to theory and classification in the field of management. On the one hand it needed clarification and on the other a better classification of the knowledge available in this field. The speakers might not be able to offer any perfect solutions but they could put the questions into clearer perspective.

The first of the papers was presented by Professor R. W. Revans, Manchester College of Science and Technology, on the documentation of management literature. He pointed out that the activity of management, including the use of economic information in the taking of business and industrial decisions, is probably growing faster than any other branch of human achievement. Understanding the processes by which we are able to get things done (whether those things are in the fields of engineering, government, education, the aiding of undeveloped economies, or the determination of human needs) provides in general the discipline known as management. If its literature continues to grow at the present rate—and there are, for example, more students reading management at the American universities than any other subject—then the most important problem facing the subject will be information retrieval difficulties.

Under the existing UDC scheme, management is classified under business, where it was left by Dewey. It has now far outgrown its subordination to business; at present it supplies powerful motivating drives in many major fields such as psychology, statistics, information theory, sociology, economics, accountancy, politics, anthropology, and ethics. Professor Revans drew attention to the conflict between the needs of those who are concerned with the study of the theory of management and the needs of the managers themselves to obtain access to information on which to base practical day-to-day decisions. He referred to Ranganathan's 'depth classification' of management, the FID trilingual Inventory of the principal terms of management, the work of Dr Gaston Friedländer, the documentation service of the International University Contact for Management Education under Professor B. W. Berenschot, and *Management International.* He suggested that a planned research project is needed to find what use managers in fact make of what is available and by what means the existing channels of managerial and economic information can be brought to them. To make managers more acquainted with what is recorded is no less urgent a need than to improve the taxonomy by which these records are partitioned.

The second paper was read by Mr K. Havlíček, Director of the Institute for Technical and Economic Information, Prague. Speaking on information for economic decision-making, he pointed out that information on economics was part of the whole field of information, including science and technology, which was required by those in whose hands lay the responsibility for making economic decisions. Though economic information had some traits in common with scientific and technical information, in other respects it differed widely. This was particularly the case where the user was concerned. The scientist is an expert in his chosen field of research and can make direct use of scientific information; responsible economic officials are not necessarily experts in the fields from which they draw the information which will influence their decisions. The information that they will need will be less detailed than that needed by the scientist and they may use it in a far more indirect way. Thus, information on the movement of prices of raw materials on foreign markets, or the size of the harvest of certain crops, may influence their decisions on the development in their own countries of synthetic materials. There is, therefore, an increased responsibility resting on those who process information for economic decision-making in order that the information that they provide may be objective and absolutely reliable. Moreover, today we live in a small world and economic decisions have repercussions far beyond national frontiers. Economic information is needed not only by those who make the decisions but also by the wider public who will be affected by the results. Already there are some international bodies dealing with economic information but its international integration and organization is far behind that of science and technology.

Mr Havlíček went on to discuss some of the specific problems in the organization of economic information, illustrating his theme by reference to the experience of the Czechoslovak institute of which he was the head. He pointed out that economic information which was to be used for making economic decisions had to be carefully 'client-centred', i.e. adapted to the particular level of the administration for which it was required. Thus central bodies of management, whether governmental or industrial, are largely interested in problems of long-term development, whereas foreign trade agencies need information to deal with short-term business-cycle changes in the world economy. These differing needs have resulted in a number of different information centres and one of the present problems in Czechoslovakia is the need to integrate these into one system so that the whole field may be covered with as little wasteful overlap as possible. A third problem concerns the form in which the information is needed. This is usually a survey of some economic, or technical-economic, development and means that the abstracts which are the raw material of the information must be further processed and statistical data must be compiled. An example of such a survey is the Czechoslovak annual *Indices of economic development abroad.* Mr Havlíček ended his paper with a plea that FID should devote more attention to the problem of documentation in the economic field.

DISCUSSION

Mr L. L. Ardern (UK) opened the discussion by saying that in his experience managers did not know what they needed or wanted to know, and came to libraries in the hope that browsing there would clarify their problems and, perhaps, provide a solution. He suggested that FID should offer the sum of £20 at twenty libraries so that a junior assistant might collect all the bits of paper on which inquiries were handed in and from these it would be possible to make an analysis of the things managers wanted to know.

Professor Revans agreed that discussion between a manager and a librarian would often discover the basic structure of the manager's difficulties. Information was needed on a world-wide basis.

Mr Maurice Gallion (France) mentioned the work that had been done in the Conseil National de la Comptabilité to select and collect abstracts on what had been achieved, in France and internationally, on practical questions affecting management. A survey had been carried out covering two hundred and fifty undertakings. The results were not yet available in full but it was found that in many cases the managers were not aware of the information services available to them. In July 1961 a study meeting had been held on information and documentation in the management field and as a result an international committee had been formed which was starting an international pool of documentation on the subject.

Dr Harold Wooster (USA) thought that there was an air of fantasy about the discussion because of the assumption that managers had time to read detailed volumes. The procedures for handling detailed numerical information for management decisions were very good and very advanced but the technology for presenting non-numerical information was still primitive. We should not make managers happy by handing them vast stacks of information which they would reject in horror, but should concern ourselves with the integration of numerical and non-numerical information.

Professor Z. Majewski (Poland) said that articles on economic information frequently purported to give it either qualitatively or quantitatively but sometimes there was a third factor. An index might be used with a term that might be interpreted in different ways in different places, so that the information could be distorted. He called upon information scientists to provide a terminology that would enable accurate comparisons to be made.

Miss Barbara Kyle (UK) referred to a new obstacle in the way of the flow of information and knowledge; the creation of 'private languages'. Management was not wholly guiltless in this respect.

Professor Revans recalled that the English philosopher Hobbes had said that 'Language is that with which man can obscure his thoughts' though he had not added, in brackets, 'if any'. Yet problems were very complex and even if everyone used the same standard language, there would still be difficulties of interpretation and argument as to what particular words meant.

Mr A. van der Laan (Netherlands), after remarking that possibly the real place of organization and management within the UDC should be in group O generalities—human activities, research, and so forth—said that managers ought not to be confronted with classification questions and problems but they needed a good selection of management literature obtained through a good classification.

Mr J. C. Peto (France) said that it was absolutely essential to arouse interest in documentation among management as such, for interest would not come of its own accord. Management was concerned with specific problems which differed according to time and place and the information services must therefore be adaptable. The information required must be concise and must be provided rapidly. In spite of what had been said, he believed that it was desirable, and possible, for published documents to be absolutely clear and comprehensible.

Dr J. E. Humblet, General Secretary, FID, agreed that it was vitally important that documents should be clear and comprehensible. The FID was urging that articles should be preceded by a summary; this in itself would oblige the author to give a clear synthesis of what he had in mind.

Professor Revans thought that attempting to classify management information was far more difficult than attempting to classify information in biochemistry or mathematics or other technologies or sciences. The whole spectrum of knowledge in physics could be ultimately resolved into quite a few independent variables but the manager, planning for the future, was dealing with a vast number of variables. An international survey of managerial needs was clearly required.

The Chairman then briefly summarized the discussion and the meeting adjourned.

In the evening the delegates were invited to a reception given by Imperial Chemical Industries Ltd and were entertained at Imperial Chemical House.

EFFICIENT USE OF INFORMATION

The Thursday morning session dealt with the efficient use of information, Dr Burton W. Adkinson being in the Chair.

The first paper was by Mr R. E. McBurney (Canada) on practical applications of the efficient use of information with special reference to Canadian experience in operating a Technical Information Service (TIS) incorporating a field force.

To an engineer, consideration of the efficiency of any system invited a comparison between the output or results from the system and the total energy or effort put into it. Before describing the work of the TIS, Mr McBurney briefly sketched the physical and economic characteristics of Canada, a vast country, varying greatly in regional viewpoints, political interests, mannerisms, facilities and methods of doing things, all of which affected the work of the information officer.

The TIS was established in 1945 to assist small and medium-sized firms in the difficult task of conversion from war- to peace-time industry. Its present function is to provide, free of charge, up-to-date technological information on the properties and processing of materials, the efficient operation of industrial facilities, new industrial developments and the results of scientific research. In 1947 the headquarters group in Ottawa was transferred to the National Research Council, since the NRC library and laboratories were its chief source of information. In addition to the group of scientists and engineers in Ottawa, the strength of the TIS lay in a chain of field offices across Canada with personnel who made direct contact with the factories. The TIS field officer was a key man and each had his own individual methods of approach to all types of industrialists, whether the president or general manager in a large company, the shop foreman, or the owner of a small business. This direct contact was invaluable and, when a problem could not be solved in the field office itself, it could be forwarded to Ottawa together with details concerning the technical background of the inquirer and the level at which the information was required. Mr McBurney went on to give considerable detail concerning the organization of the TIS, the type of officers employed (the field officers tended to be younger than the Ottawa group, generally between thirty and forty-five years old), the training of personnel, sources of information, the form and extent of the answers given, indexing and filing systems, co-operation with other government departments, costs, publicity, and finally some assessment of the results of the work.

The next speaker, Mr K. Klintøe of the Danish Technical Information Service, stressed the human element in all questions of information service. In relation to trade the purpose was to search for, to procure, and to present commercial, technical, or economic information which might help people of vastly different qualifications to manage their jobs in a more creative and efficient way. This did not necessarily mean the presentation of *all* relevant information—the cost had to be estimated in relation to the importance of the result. The information officer must select the information that is of value, i.e. that is important because it can lead to fresh developments. Then one must ask, 'Important to whom?' The importance attached to a certain item of information by the information officer might be quite different from the importance attached to it by the man who has to utilize the information. If he cannot imagine the prospective utilization of the information, if he cannot be inspired by it to create and develop it by his own efforts, he will not appreciate being informed.

Because of this wide variation in human capacity to utilize information, it is not enough to develop systems for the perfected retrieval of information, which allows us to find all information available. Only a few scientists are capable of using all of it. It should be part of an information centre's services to know the types of industry within its region and to ascertain the level at which information will be required. In short, personal contacts between the information officer and the industrialist that he hopes to help are of primary importance. Mr Klintøe ended with a remark that it might be better to spend more time on developing our communication systems than on perfecting retrieval systems.

Mr William T. Knox (USA) followed with a paper on a 'research-oriented' information service. Whereas both preceding papers had been largely concerned with the activities of the field officer who sought out those who needed help and information, Mr Knox's paper dealt with the use of information services within the research departments of large industrial undertakings. In a preliminary survey of present-day conditions, he pointed out that, in the USA, most of the physical scientists and engineers work within the framework of private enterprise. For example, 90 per cent of the chemical engineers and 70 per cent of the chemists in the US work in private industry. Even 40 per cent of the mathematicians in the US are in private industry, and many of the remainder are working in universities on government contracts. This change from the times when most scientists were in universities has brought certain blessings, such as the availability of larger funds for information services, but it also means that management has to try to assess in much more quantitative terms the value of the various services offered.

As an example of a large-scale modern technical information unit, Mr Knox went on to describe the Esso Research Technical Information Division, the management reasons for its creation, its functions and its programme. The Division was organized in 1957 and was based on existing library, abstracting and searching groups. In particular he described the relatively new use of Information Researchers. These were senior scientists or engineers whose technical ability was well accepted by research men and management and who now prefer to work with the written word rather than with laboratory equipment. They had the central responsibility, within the technical-information group, for seeing that information from all sources promptly reached the people who should know of it, in such form and fashion that its significance was clear and its use encouraged. These men played leading roles in current-literature review and in supervising studies of stored information. They maintained close relations with the management and individuals working in their fields of interest, and were careful to maintain expertness in these areas. They were an important factor in helping industrial companies—and individuals—to cope with the otherwise overwhelming flood of technical information.

Mr Knox closed his paper with some personal observations. Thus, he believed that considerably more could be done in most colleges and universities to train science and engineering graduates in the most efficient use of technical literature. Further, experience at Esso Research and Engineering with information-research work had led him to believe that a wealth of new ideas, and new applications of existing ideas, awaited qualified people who study the literature actively. The main problem was to find high-quality scientists and engineers to put to work in this field.

The last of the speakers on the Thursday morning was Mr Jean de Laclémandière (France) who took as his theme information and the 'Law of least effort'. He considered in detail the confusion that exists in the use of the terms 'information' and 'documentation', analysing them and showing their relation to communication. He then went on to give reasons why information can never be wholly 'efficient', quoting Paul Valery: 'Notre monde exige que l'on résolve des problèmes d'une complication infinie dans un délai infiniment court'. The 'Law of least effort' of his title is that formulated by Zipf, of which he said: 'Rappelons qu'elle exprime que l'information transmise d'un émetteur à un récepteur, ou entre deux émetteurs partiellement compensés, est sensiblement proportionnelle au produit de la quantité d'information possédée respectivement par l'émetteur et le récepteur, divisée par la distance qui les sépare'.

Mr Laclémandière ended his paper by listing some of the steps which would increase the efficiency of information, and stressed the real seriousness, to the community as a whole, of the present intellectual confusion concerning the nature and functions of information. 'Nous ne devons plus jouer la comédie de la communication'.

DISCUSSION

In the discussion which followed Mr Agard Evans (UK) said that he had been impressed by the need to have a network of information services in descending order of sophistication in order to make effective contact with the various levels at which information was required.

Miss M. Gosset (UK) asked how scientists and technologists could be induced to work in information services at the age of thirty?

Mr McBurney (USA) in reply said that, judging by Canadian experience, it was primarily a question of the economic situation. Up to 1957 the TIS would have had great difficulty in recruiting staff. After 1957, however, the market for engineers in Canada declined considerably. Moreover salaries in Government services such as his own had been raised in the last two or three years, making the posts still more attractive. Mr McBurney added that the TIS was quite willing to take on the older man, up to the age of sixty if he was still competent in his own field. It had been found that after reaching a certain stage, many engineers felt themselves 'beaten down' or worn out in the rat race in business and though they wanted to have some form of occupation still in the technical field, they were glad to be removed from the strain of constant pressure.

Mr Knox, replying to the same point, said that the problem was difficult but, in his view, the difficulties were growing less. In the Division for which he was responsible, it was insisted that the professionals should have equal qualifications with any other professional group in the company. This gave freedom to rotate these people from information work into engineering or research later on. He emphasized that salaries must be equal if equal talent was desired.

The session closed with a vote of thanks to the authors.

Thursday afternoon was left free for visits to various libraries and centres of interest. In the evening the delegates were invited to a reception given by Her Majesty's Government in the unique setting of the King's Library, British Museum. They were received by Lord Hailsham, Lord President of the Council and Minister for Science, and Lady Hailsham, and by Sir Frank Francis, Director and Principal Librarian of the British Museum, and Lady Francis.

CLOSING SESSION

The final public session and the official closure of the conference took place on Friday afternoon, 15th September, with Dr Alexander King, President of the Federation, in the Chair. He took the opportunity to stress that the FID was essentially a working organization, and that the conferences which took place from time to time were occasions for communication of general ideas, following up particular themes and opening up the work to a larger number of people. The activity of the organization had increased greatly in the last year or two and there was plenty of work to be done between the annual gatherings. Election to the Vice-Presidency or other positions in the Bureau was by no means a sinecure. It was election to hard work.

Dr King went on to say that the decision to break away from tradition and to hold the 1960 meetings at Rio de Janeiro had had important consequences for the FID, particularly in its attempt to secure world coverage rather than to be, in fact, merely a Western European and North American organization. A Latin American regional commission of FID had been established with its seat in Brazil and it was most encouraging to hear of the amount of activity which had taken place under its auspices during the current year.

Questions of the general structure of the organization and of contributions and finances had been studied at length by the Assembly. With regard to elections to office there was one change of precedure to report. In future Presidents would be elected a year in advance of the date on which they would take office and retiring Presidents would serve an additional year as members of the Executive Bureau; all this made for continuity.

Dr King announced that Dr Burton W. Adkinson (USA) would succeed him as President in 1962 and he paid tribute to the very valuable service that Dr Adkinson had already given to the FID.

Vice-Presidents were working appointments chosen on a regional basis. The Vice-Presidents for Western Europe were now Miss Barbara Kyle (United Kingdom), Dr Z. Paulo (Portugal), Dr W. Schurmeyer (Germany) and Professor E. Wegelius (Finland). East European Vice-Presidents were Dr L. Janzki (Hungary) and Professor A. I. Mikailov (USSR). Dr S. R. Ranganathan (India) had retired and his place had not yet been filled but Far Eastern representation was in the capable hands of Professor H. Ootuka (Japan). For the Americas, Mr K. F. Heumann (USA) would replace Dr Burton Adkinson, now President-elect, and Professor Lydia Sambaquy (Brazil) would continue in office.

Turning to future conferences Dr King announced that the 1962 meeting would be at The Hague. It was hoped that a meeting in one of the Asian countries could be arranged for 1963 or 1964 to try to undertake a task similar to that which had been successfully completed in Rio de Janeiro in 1960. Agreement had been reached to hold the next large conference in Washington in 1965, at the invitation of the United States delegation. This would allow ample time for its organization.

Dr King then dealt with the Committees through which the greater part of the work of the FID was carried out. Communication had always been a problem but since the Warsaw conference there had been some reorganization. In the system now adopted, the secretariat of each committee was located in a different member country. By placing the responsibility for the secretariat of a particular committee on a member country, the Federation expected that country to operate it efficiently, to be in day-to-day touch with people concerned in other countries, and to provide a nucleus of work which could be discussed in correspondence and meetings. The UDC remained the direct responsibility of the FID at The Hague and Mr E. Öhman (Sweden) had been appointed the first full-time officer in charge of UDC matters.

The training of documentalists was being actively studied under Professor Majewski at Warsaw and included questions of professional status. Unesco had given a contract for a report on the subject, half to FID and half to IFLA, and co-operation between the two bodies had resulted in cordial relationships. A reorganized committee on Classification Theory and General Classification was to be based in Denmark, responsibility for the committee studying Linguistic Problems had been accepted by the Netherlands, mechanized documentation was the special concern of Germany, and the secretariat of a new committee to deal with Technical Information Service to Industry had been accepted by the National Research Council of Canada. A new *ad hoc* Committee had been set up to give impartial study to the future of the UDC.

Finally Dr King turned to relations with other international organizations. Relations with Unesco had been built up very substantially during the past year, and understanding and discussion of long-term programmes were in a healthier state than they had ever been. Another advance of importance had been the establishment of better relations with international organizations in the field of natural science. A meeting had been held at The Hague, in 1960, which was attended by Unesco, ICSU, FID, IFLA, and ISO, to deal with documentation in natural science. As a result it was proposed, as a preliminary trial, that ICSU should continue to have the basic responsibility for international co-operation in primary publications in the natural sciences, but that the FID should undertake the main responsibility in relation to machine selection and retrieval. In both fields of work the other organizations would help. (In this connection it is, perhaps, worth noting that the Conference was attended by representatives of the following bodies; Communauté Européene du Charbon et de l'Acier, Conseil International du Bâtiment, OEEC, Euratom, EEC, FAO, International Atomic Energy Agency, ILO, ISO, IFLA, Unesco, Union Internationale des Chemins de Fer, and the World Federation of Scientific Workers.)

For the closing moments of the conference, Dr Burton Adkinson took over the Chair and voiced the thanks of the delegates to the representatives of the host country, and in particular to Aslib, for the organization of the conference and for the accompanying programme of visits and entertainments.

The day ended with a cocktail party at Aslib and a conference dinner.

EXHIBITION

The following are some of the items exhibited at Caxton Hall during the second week of the FID Conference.

The automatic indentification of printed numerals

Demonstration arranged by Dr M. B. Clowes and Mr J. R. Parke, National Physical Laboratory, Teddington.

There are many situations where printed or handwritten information has to be read in large quantities, quickly and with fairly high accuracy. Postal letter-sorting is one example, and the processing of numerical data by computers is another. Considerable economies could be made if the human operator in these situations could be replaced by an automatic machine but so far only very limited solutions have been proposed. This demonstration illustrates an attempt to overcome these problems. The device selects, on the basis of comparison between the unknown character and displaced copies of itself, the major 'features' of the character *regardless of their position.* Typical features are straight lines of varying orientation and—in this device—gentle curves.

Twin- and Multi-print

Developed and patented by Professor G. van den Bergh, of Colenbranderhof 6, Amsterdam-Slotervaart, Netherlands, to whom inquiries should be addressed.

The cost of paper is a substantial part of the cost of a book, particularly in large editions. In a normally printed book, a half or more of the paper may be blank because of *a*, margins; and *b,* the spaces between the lines. The spaces between the lines can be reduced almost to zero by using only capital letters; but print of this kind is very difficult to read. However, if each alternate line is obscured in some way while reading, the remaining lines are easy to read because they are well separated. This is done by means of a plastic mask consisting of alternate transparent and opaque strips, which when placed over a page of closely spaced capital letters enables every other line to be read with ease. Using this system, it is possible to get much more print on each page and greatly to reduce the size of the book. A still more intensive use of paper space can be achieved by printing two lines of type on top of each other, one in green and the other in red. By the use of red spectacles the green letters can be seen clearly as black and the red ones are invisible, and vice versa.

Card sorting/punching machine

Ozalid Co. Ltd., Langston Road, Loughton, Essex.

The card sorting/punching machine (designed by the Armament Research and Development Establishment) carries out both edge-punching and sorting of standard 8 × 5 in. or 5 × 3 in. index cards. For the purpose of punching the cards, the positions to be slotted are set up on a keyboard; the card is then pushed into an opening at the front of the machine until a stop is reached, when it is edge-punched by the operation of a lever. All the pre-set positions are punched in this operation, and any number of identical cards may be edge-punched without resetting the keyboard. Sorting is done by means of raised levers, on which the batch of cards rests. The sorting box is agitated by means of a mains-driven vibrator, which helps the cards which are slotted at the positions corresponding to the raised levers to fall.

Comparative efficiencies of indexing systems

Aslib Cranfield Research Project, in progress at the College of Aeronautics, Cranfield, Bletchley, Bucks, under the direction of Mr C. W. Cleverdon. Financed by grants from the National Science Foundation (USA).

The exhibit comprised three panels illustrating and describing the project. The first panel dealt with the compilation of the catalogues, the second with the test programme, and the third with some possible future developments.

Reader-printers

Minnesota Mining and Manufacturing Co. Ltd.

The exhibit covered Thermo-fax Filmac 100, a reader-printer combining a reader and a printer in a single, low-cost unit; Filmsort Inspector 50, a compact, portable reader designed for reading microfilm on 'D' size aperture cards; Filmsort Hand Mounter, which converts roll microfilm to aperture form in seconds; Filmsort Duplicard Copy Cards, which are Filmsort Aperture Cards with a blank frame of diazo factory-mounted on them. A duplicate copy of the master card can then be made with a Filmsort Uniprinter Copier, thus providing low-cost reference copies and saving wear and tear on the master copy; Filmsort Aperture Cards contain a 'window' into which a frame of 35 mm film can be mounted by means of a Filmsort Film Mounter. They can then be filed and located by hand or machine, and can be adapted to alphabetical or numerical systems, marginal punched, or to electric accounting machine methods.

E.M.R.D.

VOL.13, NO.12 ASLIB PROCEEDINGS DECEMBER 1961

Letter to the Editor

MANAGEMENT CLASSIFICATION: A REPLY TO PROFESSOR REVANS*

Dear Madam,

Most of the problems raised by Professor Revans in his paper to the FID/Aslib Conference are not peculiar to the subject of management, but as classification problems often show themselves very distinctly in this subject it is a useful one for investigation.

Moreover, many of the points he makes are not really classification matters. For example, in the first section he talks of the difficulty of deciding what shall go into a management documentation system. Given an adequate scheme there can be no classificatory question here because the user must put into the management section whatever the classification maker has decided belongs there. The problem as stated by Professor Revans refers to the difficulty of deciding just how wide the range of subjects is that will be of use to the manager. This could be described as classification based on the criterion of use to a particular group, but for very good reasons it is not this criterion but that of intrinsic subject matter on which classification schemes are based. Not that it is easy for the organizer of a collection on a special subject to know how wide to cast his net, but the solution depends on the knowledge of the organizer and not on classification.

The present lack of a good up-to-date classification scheme of the whole of knowledge does present a problem to those making their own schemes of a special subject, for they have no reliable source for the many fringe subjects that are bound to be needed in such an undertaking. But for those who are satisfied with the UDC the whole of knowledge is covered in more or less detail and Professor Revans' criticism that the new section 65 does not include Psychology, Sociology or Statistical Methods, suggests that he is expecting the special section to do more than can be legitimately expected of it.

A remark that he made during the delivery of his paper emphasizes this point. In talking of the need for research into the actual requirements of managers, he said 'If you ask a manager what he wants to know, he may say he wants to know about himself!' This would not be surprising, but it would be surprising if he found the answer in the literature of management. In so far as he finds the answer on paper it is much more likely to be in the sections of literature, religion or philosophy. This is the fundamental educational purpose. I am not suggesting that a classification has no educational effect but it is only a supplementary one.

One classification matter raised by Professor Revans at several points in his paper is the distinction between the technical contents of management literature and the managerial content. There are several things to be said about this.

In the first place a great deal of classificatory confusion has been caused by the loose use of the term 'management', especially in the old BIM/Min. of Ed.

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* Reference is to the full text of Professor Revans' paper, available from FID, 7 Hofweg, The Hague, Netherlands.

diploma syllabus with its so-called functions of management: production, marketing and so on. This is a terminology problem which gives no more trouble to the classificationist once he has separated the two uses of the terms management, viz.: *i,* Management=business or enterprise activities; *ii,* Management=management of these activities.

That subjects falling within the second category require more careful formulation there is no question; but this problem must be kept quite distinct from that of accommodating subjects in a classification scheme. A modern scheme should have no difficulty in dealing with a compound subject composed of a 'technical' aspect such as the installation of a financial control system and a management aspect such as the human relations of the man carrying out this task. Both aspects would be explicitly recognized and anyone who knew what he was looking for would find it. But I thought Professor Revans had in mind a manager who did not realize his problem was a personal one: in which case no classification on earth could help.

The example of a paper on 'batch-control in assembly line production' containing a reference to co-ordination of specialized personnel is more difficult. Professor Revans is asking here that the classifier should search a document for significant contributions to subjects other than that of the total document, and make added entries for them. This has, of course, always been recognized by the library profession as appropriate practice and is often carried out to some extent. This again is not a classification problem. It is *a,* the problem of the knowledge of the classifier and *b,* a problem of practicability. Any large-scale recording of extra subjects like this usually puts too great a strain on the resources of the library and even if it is carried out it presents a major problem of judgment as to how far the extra entry-making should be taken.

The essence of Professor Revans' paper is the suggestion that there is a need for two classification systems in Management—one a traditional type of scheme based on theoretical analysis of the subject and the other a thesaurus compiled from research into the actual needs of managers.

It is first necessary to distinguish between the essential nature of a traditional classification scheme and the actual nature of those in existence.

Classifications are made to organize *literature* and literature is presumed to incorporate concepts of reality held by its writers. In theory therefore, there should be no discrepancy between our knowledge of reality and the classification schemes which embody it. In fact, discrepancies can arise for three reasons:

1. Ignorance or bad work of the classification maker.
2. Lack of complete agreement among specialists.
3. Changes in knowledge rendering classifications obsolete.

Problems 1 and 2 can be reduced to small enough proportions to make a good 'traditional' scheme possible, but 3 is the major problem today with the rapid development of knowledge in the physical and social sciences. Earlier in the century it was possible for Bliss to write of the scientific and educational consensus as if it were one single thing. Today it certainly is not. Broadly speaking the educational consensus is the picture of knowledge drawn in our text books and school and college syllabuses: the scientific consensus is the new pattern of knowledge revealed by the latest scientific research. This is why the older classification schemes such as Dewey, Library of Congress and Bliss can still deal to some extent with a general collection but are completely inadequate for special collections in rapidly developing subjects.

Many people have tried their hands at new schemes to deal with specific subjects and in the most important of these (developing from the work of Ranganathan) the emphasis is on flexibility of structure to cope with rapid change, thus saving the scheme from becoming obsolete within five years. Objections to the UDC are based on its failure to meet this requirement.

If Professor Revans' idea of traditional schemes is based largely on the UDC then one can agree with his strictures on them—but provided the conditions I have set out are met there seems no reason why such a scheme should be wrong in principle.

In the *Journal of Documentation,* vol. 16, no. 4, B. C. Vickery describes four uses of the term 'thesaurus' in recent documentation literature. I am not clear which one Professor Revans had in mind, but will assume that 'multilingual inventory' is an accurate description. It seems to me that while this kind of thesaurus is a very necessary research tool, it does represent a stage of work even earlier than the 'scientific consensus'. The classification maker can only base his work on what specialists have written—Professor Revans' main complaint seems to be that what the specialists have written does not bear much relation to reality. The thesaurus would attempt to formulate concepts but in so doing it would be only work in progress towards a classification scheme. The consensus necessary for building a generally valid scheme would result from the consolidation of this research work.

Thus while I can appreciate Professor Revans' request for such a thesaurus as a research tool I cannot see that the practical use he suggests would be possible. Firstly, for the reason I have suggested: that it is only the first stage in the formation of a new classification pattern; and secondly because one could not expect librarians or information officers to find concepts in the literature before they were consciously being employed by writers.

Yours truly,

D. W. LANGRIDGE,
Ashridge College,
Berkhamsted,
Herts.

September 1961.

SELECTIONS FROM THE RECENT LITERATURE

ALL ITEMS listed may be borrowed from the Aslib Library, except those marked *, which may be consulted in the library.

Books and Pamphlets

AMERICAN CHEMICAL SOCIETY
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The charge for advertisements in these columns is 4*d* per word, minimum 5*s*. An additional charge of 6*d* is made for the use of a box number.

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WILFRED E. GOODAY, ARSM, DIC, MIMM, FIL. Technical translation from French and Roumanian. 161 Rivermead Court, London, SW6. Renown 1912.

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ASSISTANT LIBRARIAN, age 23–35, is required by Kellogg International Corporation for some indexing, outside loans, information work, and routine duties in their Technical Library. Applicants should have a good educational background and library qualifications would be an advantage. At least three years' previous experience in a special or public library is essential. Some typing is necessary. A good salary, comprehensive personnel benefits and excellent working conditions are offered. Written applications, giving details of age, education, and experience, should be addressed to the Personnel Officer, Kellogg International Corporation, 62–72 Chiltern Street, Baker Street, London W1.

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ELECTRICAL REVIEW, vol. 164 (1959), nos. 1, 4, 7, 10, 18, 22, 25, 26. Also *Drug and Cosmetic Industry*, April 1961. Replies to Reckitt & Sons Ltd, Library & Information Service, Dansom Lane, Hull.

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Board of Trade Journal, bound sets, 1935–54 inclusive. Apply to Commercial Information Officer, Smith & Nephew Ltd, Bessemer Road, Welwyn Garden City, Herts.

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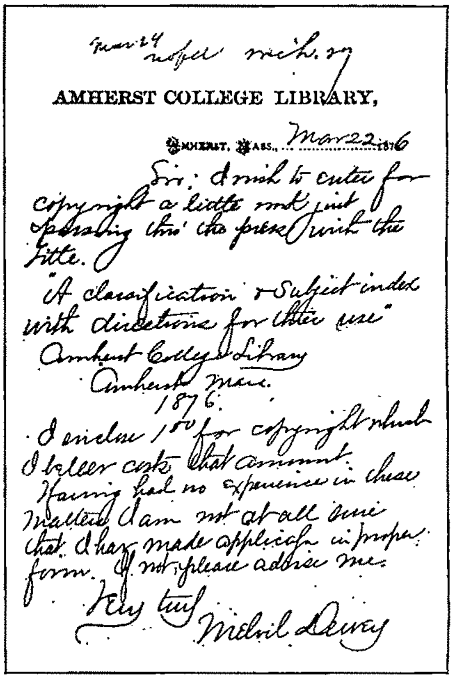
1876	completes the first edition of his immortal Decimal Classification and plays a leading part in the creation of both the American Library Association and the *Library journal*
1877	attends the first International Library Conference, in London
1883	appointed Librarian of Columbia College
1887	establishes the first school for professional librarians
1889	appointed New York State Librarian
1890	appointed President of the American Library Association
1892	reappointed President of the American Library Association
1900	receives three Grand Prix for his services to education and librarianship, at the Paris Exhibition
1905	retires from active library work
1906	founds the Library Bureau, and the Lake Placid Club and Education Foundation
1931	dies at Lake Placid Club, Florida (December 26th)



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AMHERST COLLEGE LIBRARY,

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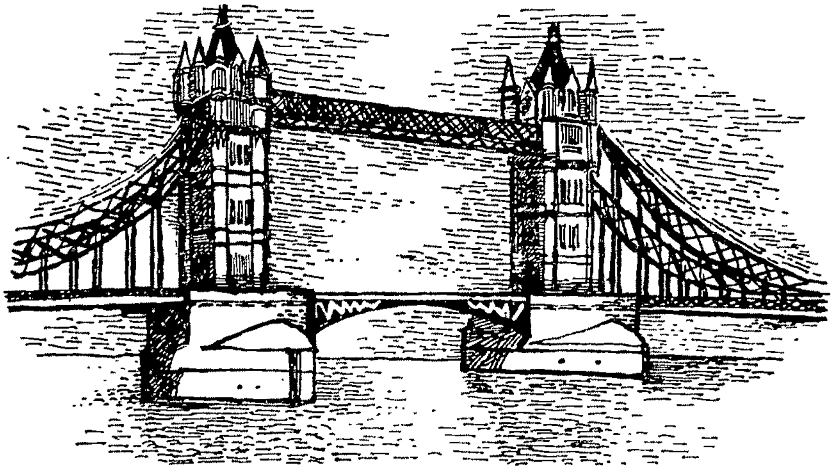

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